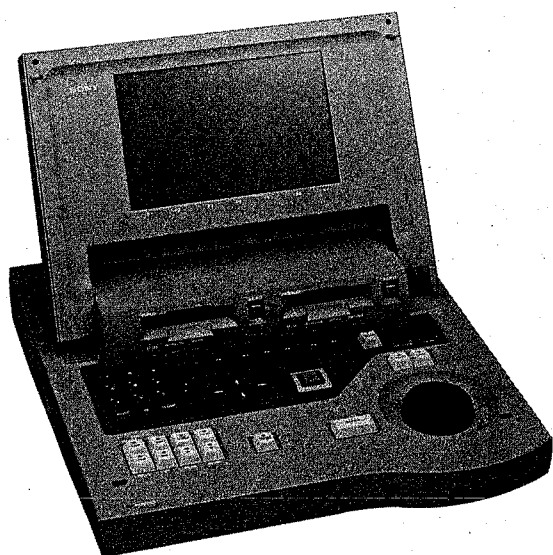


**SONY**

DAT DUAL DECK EDITOR

**PCM-E7700**



## **DATStation**

OPERATION AND MAINTENANCE MANUAL Part 2  
1st Edition

Serial No. 10001 and Higher (J)

Serial No. 20001 and Higher (UC)

Serial No. 50001 and Higher (EK)

## For the customers in the U.S.A.

### WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC rules.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**WARNING:** Using this unit at a voltage other than 120 V may require the use of a different line cord or attachment plug, or both.  
To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

## For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in radio interference regulations.

### Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A, pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

### Bescheinigung des Herstellers

Hiermit wird bescheinigt, daß die DAT-Doppel-Fernbedieneinheit PCM-E7700 in Übereinstimmung mit den Bestimmungen der BMPT-Amtsblatt Vfg 243/1991 und Vfg 46/1992 funkenstört ist. Der vorschriftsmäßige Betrieb mancher Geräte (z.B. Meßsender) kann allerdings gewissen Einschränkungen unterliegen. Beachten Sie deshalb die Hinweise in der Bedienungsanleitung. Dem Bundesamt für Zulassungen in der Telekommunikation wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Sony Deutschland GmbH  
Hugo Eckener Str 20  
50829 Köln

### Hinweis

Gemäß der Amtsblätter des BMPT Nm. 61/1991 und 6/1992 wird der Betreiber darauf aufmerksam gemacht, daß die von ihm mit diesem Gerät zusammengestellte Anlage auch den technischen Bestimmungen dieser Amtsblätter genügen muß.



## このマニュアルについて

### 本書の目的

本書は、PCM-E7700のオペレーション アンド メンテナンスマニュアル パート2です。

本書は、サービスエンジニアの方々にご使用いただくことを想定し、これらの機種の一部品レベルまでのサービスを前提とした情報(回路図、マウント図、詳細パーツリスト等)を記載しています。

### 構成

本書の構成を把握していただくために、全章の概略を以下に説明します。

## オペレーション アンド メンテナンスマニュアル パート2

### 第1章 サービスインフォメーション

電源ヒューズの交換、補修用部品注意事項について説明しています。

### 第2章 メカデッキの交換および調整

メカデッキAssyおよびメカデッキ部品(定期交換部品)の交換方法、調整方法について記載しています。

### 第3章 電気調整

ADA-31基板を交換した際に必要な調整について記載しています。

## SECTION 4 BOARD LAYOUTS

マウント図、部品の基板アドレスを記載しています。

## SECTION 5 SCHEMATIC DIAGRAMS

回路図を記載しています。

## SECTION 6 SEMICONDUCTOR PIN ASSIGNMENTS

使用半導体の標準図を記載しています。

## SECTION 7 SPARE PARTS

分解図・メカ部品表、電気部品表を記載しています。

オペレーション アンド メンテナンスマニュアル パート1(PCM-E7700に付属しています)

第1章 取り扱い操作

第2章 設置

第3章 サービスインフォメーション

第4章 定期点検及び保守

SECTION 5 BLOCK DIAGRAMS, DESCRIPTION  
AND FRAME WIRING

SECTION 6 SPARE PARTS

## MANUAL STRUCTURE

### Purpose of This Manual

This manual is PCM-E7700 Maintenance Manual Part 2.

This manual describes the information items (adjustments, board layouts, schematic diagrams, detailed parts list, etc.) that premise the service based on parts.

If this manual is required, please contact to Sony's service organization.

### Contents

The following are a summary of all the sections for understanding the contents of this manual.

## Operation and Maintenance Manual Part 2

### SECTION 1. SERVICE OVERVIEW

Describes power fuse replacement and precautions for repair parts.

### SECTION 2. REPLACEMENT AND ALIGNMENTS OF MECHANICAL DECK

Describes how to replace the assembly and the parts of the mechanical deck that should be replaced periodically and how to adjust them.

### SECTION 3. ELECTRICAL ALIGNMENTS

Describes adjustments required when ADA-31 board is replaced.

### SECTION 4. BOARD LAYOUTS

Printed circuit pattern of circuit boards and their printed symbols are shown in the almost same order of schematic diagrams.

### SECTION 5. SCHEMATIC DIAGRAMS

Contains schematic diagrams of printed circuit board.

### SECTION 6. SEMICONDUCTOR PIN ASSIGNMENTS

Contains pin assignment diagrams of semiconductors used.

### SECTION 7. SPARE PARTS

Contains exploded views, mechanical parts list, and electrical parts list.

Operation and Maintenance Manual Part 1 (Supplied with PCM-E7700)

SECTION 1. OPERATIONS

SECTION 2. INSTALLATION

SECTION 3. SERVICE INFORMATION

SECTION 4. PERIODICAL INSPECTION AND  
MAINTENANCE

SECTION 5. BLOCK DIAGRAMS, DESCRIPTION AND  
FRAME WIRING

SECTION 6. SPARE PARTS

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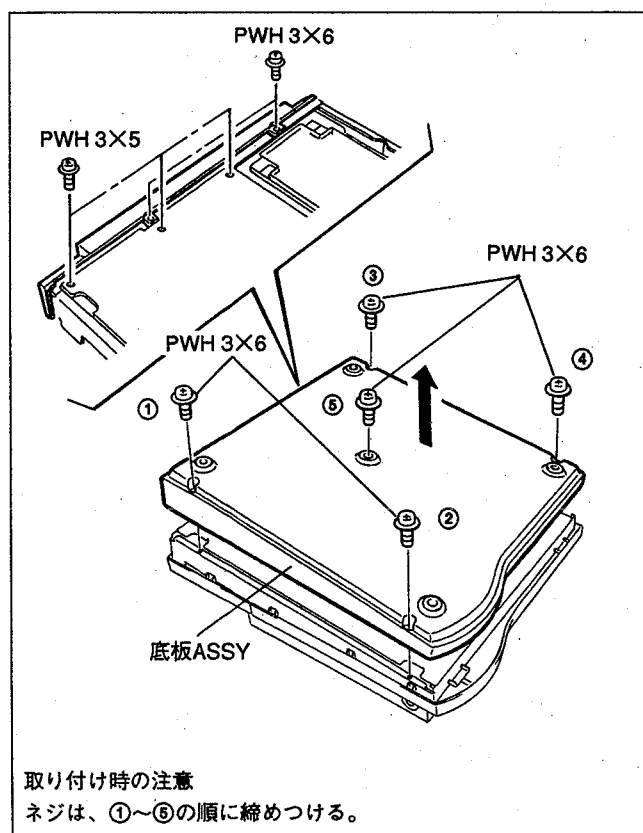
# 第1章 サービスインフォメーション

## 1-1. DCファンモータの交換

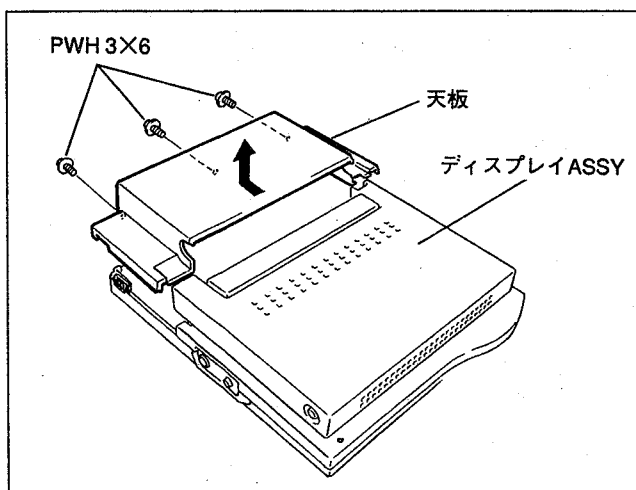
注意：電源スイッチをOFFにし、電源コードを抜いておく。

### 手順

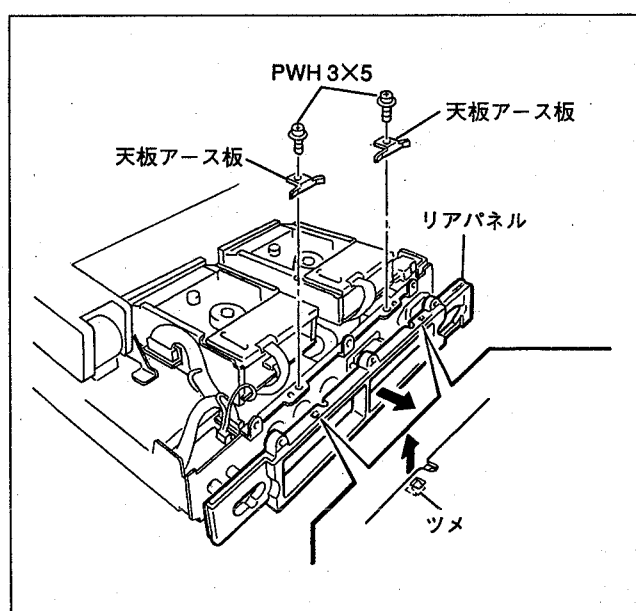
- (1) ネジ5本(PWH3×6)を外し、底板ASSYを取り外す。  
次にネジ5本(PWH3×5)を外しておく。



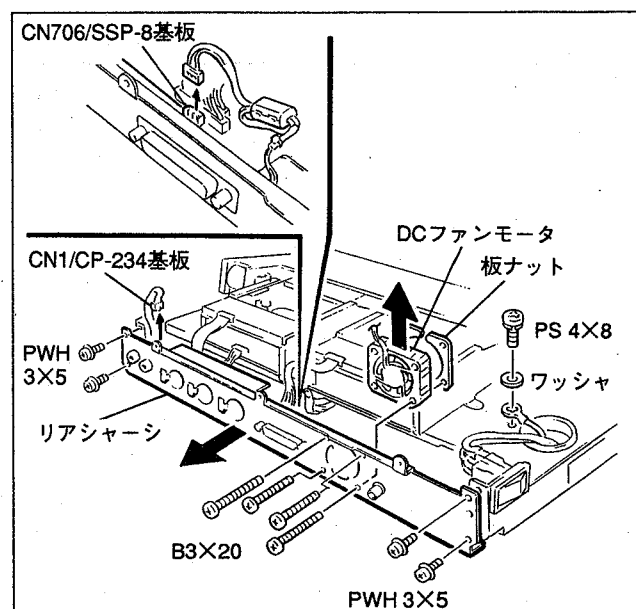
- (2) ネジ3本(PWH3×6)を外し、天板を後方にスライドさせてから、上へ取り外す。



- (3) ネジ2本(PWH3×5)と天板アース板を取り外す。  
ツメ2ヶ所を外し、リアパネルを取り外す。



- (4) CN1/CP-234基板を外し、ネジ5本(PWH3×5、PS4×8)を外し、リアシャーシを引き出す。  
コネクタCN706/SSP-8基板からハーネスを外し、ネジ4本(B3×20)を外す。  
DCファンモータを取り外し、新しいファンモータと交換する。



## 1-2. SSP-8基板に関するサービス情報

### 1-2-1. SSP-8基板上の動作確認用LEDについて

SSP-8基板上には、動作確認用として下記のLEDがある。各LEDの働きは次のようになっている。

D106(RED): I/O CPU(IC103)が不良の時点灯  
(通常動作時; 消灯)

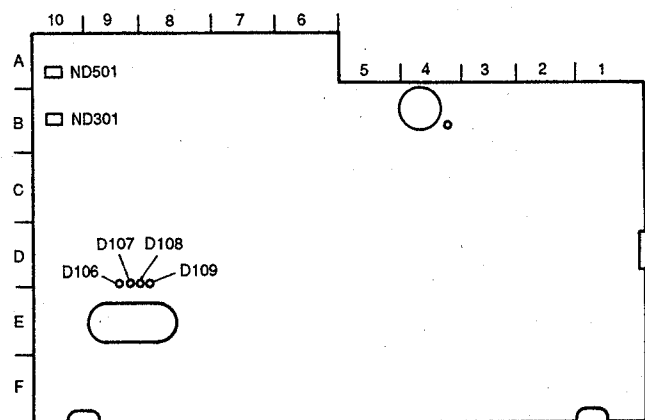
D107(RED): GDC(IC125)が不良の時点灯  
(通常動作時; 消灯)

D108(YELLOW): EEROM(IC115)のアクセス中点灯

D109(GREEN): I/O CPUブロックが正常動作している時点滅  
(約0.2s間隔)

ND301: PLAYER CPUブロックが正常動作していない時、表示が静止(止まる)

ND501: RECORDER CPUブロックが正常動作していない時、表示が静止(止まる)



SSP-8 Board  
(部品面側)

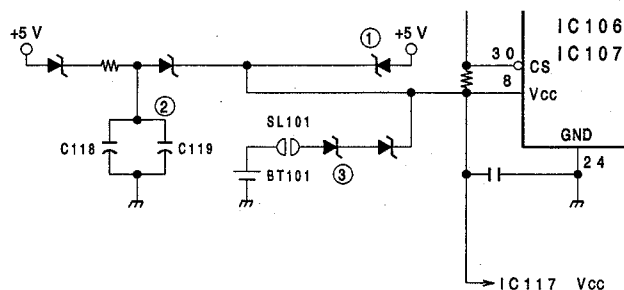
### 1-2-2. リチウム電池(CR-2450)の交換

SSP-8基板上にあるバッテリーバックアップ用リチウム電池(CR-2450)の寿命は、メッセージとして表示されない。したがって、オペレーション時間等を目安に交換する。  
標準交換サイクル; 約3年  
交換は以下の手順で行う。

#### 部品名

リチウム電池(CR-2450); 1 (部品番号: 1-528-229-11)

#### 動作説明



上記回路において、IC106、107、117は3系統の電源より、Vccの+5V、CSのPULL UP抵抗の+5Vを供給されるようになっている。

すなわち、

①本体電源

②本体電源によってチャージされたC118、C119からの+5V

③BT101からの+3V

である。

・ 本体動作中は①よりの供給、そして②の充電が行われる。

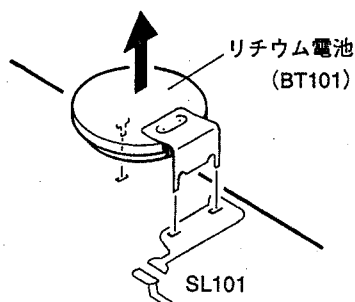
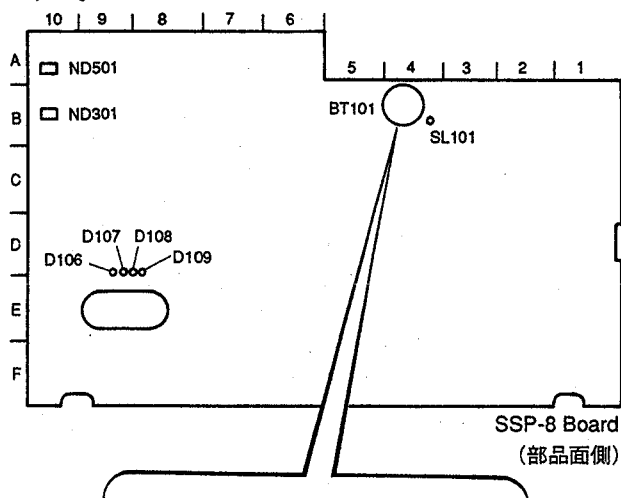
・ 本体をOFFにすると②からの供給が行われる。

・ ②が放電しつくすと、③からの供給が行われる。

これらの方法で、IC106、107のSRAMのデータおよびIC117の時計動作のバックアップが行われる。

## 交換手順

- (1) PCM-E7700本体の電源(POWER)スイッチをONにして、10分以上通電しておく。
- (2) 電源(POWER)スイッチをOFFにする。
- (3) SSP-8基板を本体より外す。  
外し方については、MAINTENANCE MANUAL Part1の“2章外装の取り外し”および“Section6 6-2. EXPLODED VIEWS AND PARTS”を参考にして行う。
- (4) 基板の部品面側にあるスリットランド(SL101)のはんだをとる。
- (5) リチウム電池(BT101)をSSP-8基板より外す。
- (6) 新しいリチウム電池(CR-2450)をSSP-8基板に取り付ける。
- (7) スリットランド(SL101)をはんだ付け(はんだブリッジ)する。

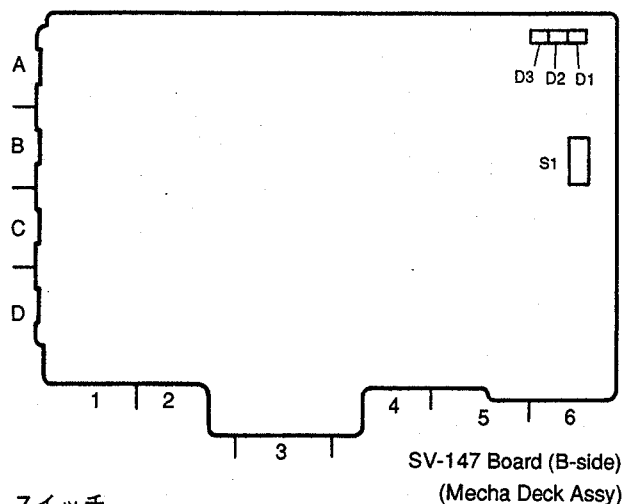


- (8) SSP-8基板を本体に取り付ける。
- (9) 電源(POWER)スイッチをONにする。
- (10) エラーメッセージが表示されずに起動することを確認する。

## 注意事項：

- ・交換を行う際、IC106、107、117の足などをショートするとSRAMおよび時計の内容が破壊されるので注意して行う。
- ・新しい電池の電圧が2.6V以上あることを確認してから交換する。

## 1-3. SV-147基板上のスイッチ設定/LEDの機能



### スイッチ

S1 (S1-1 to S1-4) ; 調整モード設定スイッチ  
(詳細は“第2章メカデッキの交換および調整”参照)

### 工場出荷時の設定

S1-1 to S1-4 ; すべてOFF  
(通常動作時の設定)

### LED

#### D1 ; CPU 動作表示

点滅(約1秒間隔) ..... 正常時  
早い点滅(約0.5秒間隔) ... 異常検出時  
点灯または消灯 ..... CPU停止時

#### D2 ; 調整モード表示

点灯 ..... 調整モードON  
消灯 ..... 調整モードOFF

#### D3 ; サーボlock表示

点灯 ..... lock  
消灯 ..... unlock

## 1-4. 補修用部品注意事項

### 1-4-1. 補修用部品注意事項

#### (1) 安全重要部品

回路図、分解図、電気部品表中で△印付きの部品は、安全性を維持するために重要な部品である。従ってこれらの部品を交換する時には、必ず指定の部品と交換すること。

#### (2) 部品の共通化

ソニーから供給される部品はセットに実装されているものと異なることがある。

これは部品の共通化、改良等によるものである。

分解図や電気部品表には現時点での共通化された部品が記載されている。

#### (3) 部品の変更

部品の変更に関する情報は「CHANGED PARTS」を参照すること。

#### (4) 部品の在庫

部品表のSP(Supply code)欄に○で示される部品は交換頻度が低い部品で、在庫していないことがあり、納期が長くなることがある。

#### (5) コンデンサ、抵抗の単位

回路図、分解図、電気部品表中、特に明記したものを除き、下記の単位は省略されていることがある。

コンデンサ:  $\mu\text{F}$

抵抗:  $\Omega$

### 1-4-2. チップ部品の交換方法

#### 用意する工具

はんだコテ: 20W程度。できれば、コテの温度を $270 \pm 10^\circ\text{C}$ にコントロールできる温度コントローラを使用すること。

編組線: SOLDER TAUL または同等品

ソニー部品番号 7-641-300-81

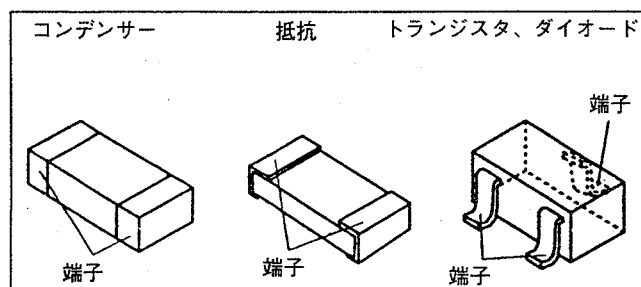
はんだ: 直径0.6mmが望ましい。

ピンセット

#### はんだ付条件

コテ温度:  $270 \pm 10^\circ\text{C}$

はんだ付時間: 一端子について2秒以内にす。



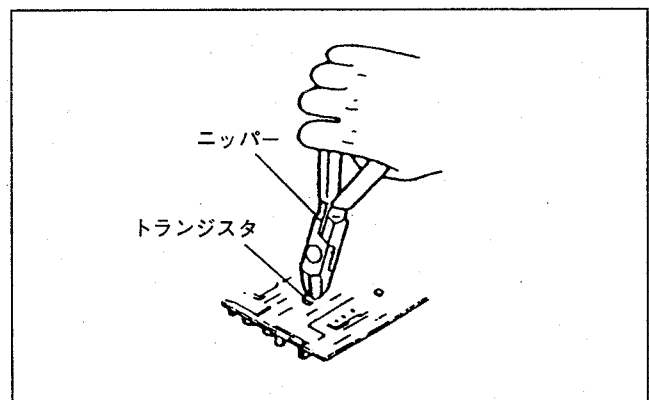
#### ・抵抗、コンデンサの交換

- (1) はんだコテの先をチップ部品の上にのせてチップ部品を加熱し、はんだが溶けた状態で横にずらす。
- (2) 取り外した部分のパターンはがれ、隣接はんだ付部のダメージ、ブリッジなどがないことを確認する。
- (3) パターンにうすく予備をはんだする。
- (4) 新しいチップ部品をパターンにのせ、両端をはんだ付ける。

注意: 取り外したチップ部分は再び使わないこと。

#### ・トランジスタ、ダイオードの交換

- (1) ニッパにて部品の端子を切断する。
- (2) 切断した端子をはんだコテで取り除く。
- (3) 取り除いた部品のパターンはがれ、隣接はんだ付部のダメージ、ブリッジなどがないことを確認する。
- (4) パターンにうすく予備をはんだをする。
- (5) 新しいチップ部品をパターンにのせ、端子をはんだ付ける。



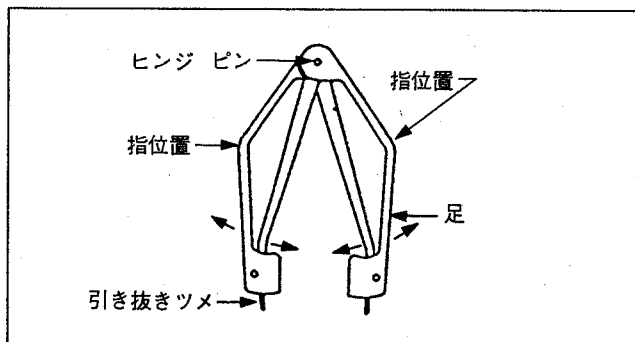
#### ・ICの交換

- (1) 編組線を使って端子のはんだを取り除く。
- (2) はんだコテで加熱しながら、ピンセットなどを使って端子を一本ずつパターンから外し、ICを取り除く。
- (3) 取り除いた部分のパターンはがれ、隣接はんだ付部のダメージ、ブリッジなどがないことを確認する。
- (4) パターンにうすく予備をはんだをする。
- (5) 新しいチップ部品をパターンにのせ、端子をはんだ付ける。

### 1-4-3. PLCC ICの取り外し方法

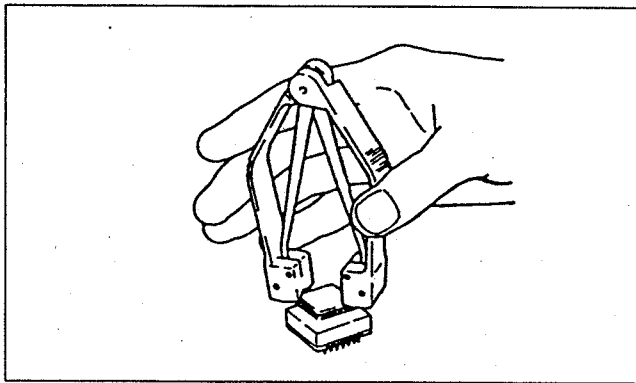
ICソケットに差し込まれたPLCCタイプのICを取り外す場合は、下記の工具を使用することを推奨します。20～124ピンまでのピン数のICに利用できます。

PLCCソケット用引き抜き工具  
ソニー部品番号J-6035-070-A

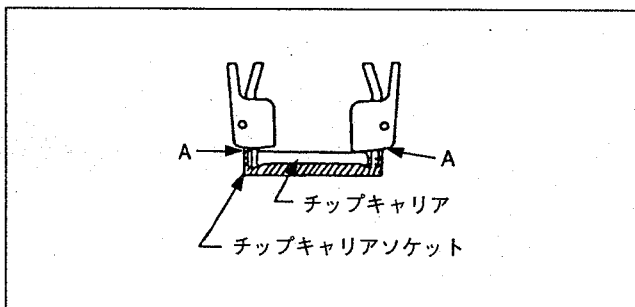


注意：・引き抜き工具でICチップを上方に引っ張らないこと。  
・必要以上の力で工具をはさみ込まないこと。

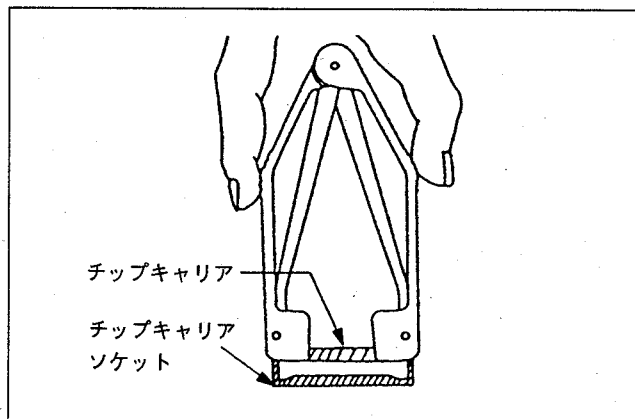
1. 工具の足をソケットのスロットの長さに合わせます。



2. 工具の先端の引き抜きツメをICソケットのスロットに差し込み、引き抜き工具の図に示すAの部分がソケットにあたるまで押し込みます。



3. 図のように引き抜き工具のリブの部分を持ちます。ソケットには下方方向に小さな力がかかります。



4. 引き抜き工具をはさみ込みます。これにより、工具の足が伸びると同時に、工具の先端のツメがICチップをつかみ、上方方向に引き抜きます。
5. 引き抜いた後、力をゆるめ、ICチップを引き抜き工具から外します。





## 2-2. 調整および確認

メカデッキASSYおよびメカデッキ部品(定期交換部品)を交換後、表Aに従って調整および確認を行う。

調整および確認は、本機に内蔵のサービスマニュアルを使用し、メカデッキASSYを本体に取り付けて行う。

### サービスマニュアルの入り方

- (1) SV-147基板のBITスイッチ(S1)を以下のように設定する。

S1/SV-147基板の設定

S1-3 ; ON

S1-1、-2、-4 ; OFF

- (2) POWERスイッチをONにする。
- (3) **[SHIFT]** キー + **[MODE]** キーを同時(2重押し)に押す。  
(サービスマニュアルの設定)

### ELディスプレイ画面表示

| SERVICE MENU |                                     |      |        |
|--------------|-------------------------------------|------|--------|
| 1            | PLAYER MECHANICAL DECK ADJUSTMENT   |      |        |
| 2            | RECORDER MECHANICAL DECK ADJUSTMENT |      |        |
| 3            | TEST                                |      |        |
| 4            | INFORMATION                         |      |        |
| P-MD         | R-MD                                | TEST | INFORM |
| F 1          | F 2                                 | F 3  | F 4    |
| F 5          | F 6                                 | F 7  |        |

注意：F1～F7；ファンクションキー

- (4) PLAYERメカデッキを調整する場合；

**[F1]** (P-MD) キーを押す。

RECORDERメカデッキを調整する場合；

**[F2]** (R-MD) キーを押す。

### ELディスプレイ画面表示

(注意：画面は、RECORDER ADJUSTMENTの場合)

| RECORDER ADJUSTMENT        |                                | SERVO BOARD BIT SW |
|----------------------------|--------------------------------|--------------------|
| <input type="checkbox"/> 1 | SERVO DATA PRESET              | BIT1 OFF MAN EJECT |
| 2                          | PLUNGER CHECK                  | BIT2 OFF EEPROM EN |
| 3                          | MECHA DEVICE TEST              | BIT3 ON ERROR CUT  |
| 4                          | RECOGNITION SWITCH CHECK       | BIT4 OFF -----     |
| 5                          | END SENSOR LEVEL CHECK (HIGH)  |                    |
| 6                          | END SENSOR LEVEL CHECK (LOW)   |                    |
| 7                          | DEW SENSOR CHECK               |                    |
| 8                          | REEL TORQUE CHECK              |                    |
| 9                          | FWD/RVS TORQUE ADJUSTMENT      |                    |
| 10                         | DRAM/CAPSTAN SPEED & WOW CHECK |                    |
| MESSAGE                    |                                |                    |
| RECORDER: STOP             |                                |                    |
| TEST ON EXIT               |                                |                    |
| F 1                        | F 2                            | F 3                |
| F 4                        | F 5                            | F 6                |
| F 7                        |                                |                    |

\* : SERVICE MENU時のモード設定操作キー表示

| 操作キー          | モード         |
|---------------|-------------|
| [SHUTTLE]:    | STILL       |
| [PREVIOUS]:   | SHUTTLE-16  |
| [NEXT]:       | SHUTTLE+16  |
| [PGM SEARCH]: | SHUTTLE-1   |
| [LOCATE]:     | SHUTTLE+1   |
| [1]:          | SHUTTLE-8   |
| [2]:          | SHUTTLE+8   |
| [4]:          | SHUTTLE-2   |
| [5]:          | SHUTTLE+2   |
| [7]:          | SHUTTLE-0.2 |
| [8]:          | SHUTTLE+0.2 |

- (5) **[↑]**、**[↓]** キーを使用して、表Aに従って必要な調整項目を選択し(カーソル“**[□]**”で選択)、  
“2-2-2. サービスメニューでの調整および確認”を行う。

### サービスマニュアルの抜け方(通常動作への復帰)

調整終了後、サービスマニュアルから通常動作モードへの復帰は以下のように行う。

- (1) SV-147基板のBITスイッチ(S1)を以下のように設定する。  
S1-1、-2、-3、-4 ; すべてOFF
- (2) 本体のPOWERスイッチをOFFにする。
- (3) 本体のPOWERスイッチをONにする。

表A: 調整項目一覧

メカデッキASSYおよびメカデッキ部品(定期交換部品)を交換した際、表中の○印の項目が必要な調整項目。

| 調整項目 (サービスモード)                           | 交換部品<br>メカデッキ組立 | ドラム<br>ASSY | カセコン<br>ASSY | ドライ<br>フ・モ<br>ーター<br>ASSY | DCモ<br>ーター<br>キャプ<br>タン | リール<br>モーター | ピンチ<br>ローラー<br>ASSY | ロータリー<br>エンコー<br>ダー | HC<br>ローラー | その他                    |                       |
|--|-----------------|-------------|--------------|---------------------------|-------------------------|-------------|---------------------|---------------------|------------|------------------------|-----------------------|
|  |                 |             |              |                           |                         |             |                     |                     |            | SV-147<br>ASSY<br>(RP) | RF-53<br>ASSY<br>(RP) |
| 1. SERVO DATA PRESET                     |                 |             |              |                           |                         |             |                     |                     |            |                        |                       |
| 2. PLUNGER CHECK                         |                 |             |              |                           |                         | ○           |                     |                     |            |                        |                       |
| 3. MECHANICAL DEVICE TEST                |                 | ○           | ○            | ○                         | ○                       | ○           | ○                   | ○                   | ○          | ○                      |                       |
| 4. RECOGNITION SWITCH CHECK              |                 |             |              |                           |                         |             | ○                   | ○                   |            |                        |                       |
| 5. END SENSOR LEVEL CHECK<br>(HIGH)      |                 |             | ○            |                           |                         |             |                     |                     |            | ○                      |                       |
| 6. END SENSOR LEVEL CHECK<br>(LOW)       |                 |             | ○            |                           |                         |             |                     |                     |            | ○                      |                       |
| 7. DEW SENSOR CHECK                      |                 |             |              |                           |                         |             |                     |                     |            |                        |                       |
| 8. REEL TORQUE CHECK                     |                 |             |              |                           |                         | ○           |                     |                     |            |                        |                       |
| 9. FWD/REV TORQUE ADJUSTMENT             |                 |             |              |                           |                         | ○           |                     |                     |            | ○                      |                       |
| 10. DRUM/CAPSTAN SPEED & WOW<br>CHECK    |                 | ○           |              |                           |                         |             |                     |                     |            |                        |                       |
| 11. TAPE PATH ADJUSTMENT                 |                 | ○           |              |                           | ○                       | ○           | ○                   |                     |            |                        |                       |
| 12. SWP POSITION ADJUSTMENT              |                 | ○           |              |                           |                         |             |                     |                     |            | ○                      |                       |
| 13. PATH & FF/REW TIME CHECK             |                 | ○           |              |                           | ○                       | ○           | ○                   |                     |            |                        |                       |
| 14. PB ERROR RATE CHECK                  | ○               | ○           |              |                           | ○                       | ○           | ○                   |                     |            | ○                      | ○                     |
| 15. REC CURRENT ADJUSTMENT<br>(LEADING)  |                 | ○           |              |                           |                         |             |                     |                     |            | ○                      | ○                     |
| 16. REC CURRENT ADJUSTMENT<br>(TRAILING) |                 | ○           |              |                           |                         |             |                     |                     |            | ○                      | ○                     |
| 17. REC/PB ERROR RATE CHECK              | ○               | ○           |              |                           |                         |             |                     |                     |            | ○                      | ○                     |
| 18. SERVO DATA SAVE                      |                 | ○           |              |                           |                         | ○           |                     |                     |            | ○                      | ○                     |
| 19. SERVO DATA DISPLAY                   |                 |             |              |                           |                         |             |                     |                     |            |                        |                       |
| 2-2-3. SV-147基板交換時の確認                    |                 |             |              |                           |                         |             |                     |                     |            | ○                      |                       |

## 2-2-1. 準備

### 使用機器

| 名称                | 仕様                            | 機器名                   |
|-------------------|-------------------------------|-----------------------|
| オシロスコープ           | ・ 4CH INPUT<br>・ DC to 150MHz | TEKTRONIX 2445Aまたは相当品 |
| デジタルマルチメーター(テスター) | —                             | アドバンテストR6341Aまたは相当品   |

### 治工具

| 名称                                  | 部品番号         | 備考         |
|-------------------------------------|--------------|------------|
| 調整ドライバー                             | J-6225-100-A | テープパス微調整用  |
| RF LEVEL CHECKER PD-817             | J-6228-170-A | 記録再生系調整用   |
| RF LEVEL CHECKER用 I/Fボックス<br>PF-534 | J-6405-340-A | PCM-E7700用 |

### テストテープおよびトルクカセット

| 名称               | 部品番号         | 備考                |
|------------------|--------------|-------------------|
| テストテープ TY-7111DX | 8-909-825-00 | 再生レベル確認用          |
| テストテープ TY-7251   | 8-909-813-00 | トラッキング調整用         |
| テストテープ TY-30BX   | 8-892-332-38 | 記録レベル調整用(ブランクテープ) |
| テストテープ TY-7212   | 8-960-081-01 | エラーレート確認用         |
| トルクカセット TW-7131  | 8-909-708-71 | FWD/REVトルク調整用     |
| トルクカセット TW-7231  | 8-909-708-72 | FF/REWトルク確認用      |

以下のテストテープは、市販のテープを表に従って使用する。

| 名称                  | 使用方法   |
|---------------------|--|
| 空カセット               | テープなし(市販のカセットテープを改造)   |
| テストテープ(01010)       | 空カセットでカセット識別穴(孔)が以下のテープ(市販のDATテープを改造) <div> <p>0 1 0      1 0<br/>           1 2 3      4 5<br/>           識別孔      REC INH</p> <p>○: OPEN<br/>           ●: CLOSE</p> </div> |
| テストテープ(10101)       | 空カセットでカセット識別穴(孔)が以下のテープ(市販のDATテープを改造) <div> <p>1 0 1      0 1<br/>           1 2 3      4 5<br/>           REC INH</p> <p>○: OPEN<br/>           ●: CLOSE</p> </div>          |
| テストテープ(エンドセンサーLOW)  | 市販の120分テープ(テープ中央付近で使用)   |
| テストテープ(TOP)         | 市販の120分テープ(テープTOP付近で使用)  |
| テストテープ(END)         | 市販の120分テープ(テープEND付近で使用)  |
| テストテープ(FF/REW TIME) | 市販の30分テープ(テープ全長記録済みで使用)  |

## 2-2-2. サービスメニューでの調整および確認

### 1. SERVO DATA PRESET(1. サーボデータプリセット)

通常、メカデッキ部品(定期交換部品)を交換した際は、この調整および確認は行う必要はない。

注意：誤ってサーボデータプリセットを行った場合は、本機のPOWERスイッチをOFFにし、再度ONにする。

使用機器、治工具；使用せず

使用テストテープ；使用せず

| 手順   | 確認   |
|--|--|
| <p>(1) <b>[F1]</b>、<b>[F2]</b>キーで“1. SERVO DATA PRESET”を選択する。</p> <p>(2) <b>[F1]</b> (TEST ON) キーを押す。</p> <p>(3) ELディスプレイ画面にMESSAGE：<br/>PRESETTING IS COMPLETED!が表示される。</p> <p>(4) 表示後、<b>[F1]</b> (TEST OFF) キーを押す。<br/>(プリセット終了)</p> <p>注意：<b>[F1]</b> キーを1回押すとTEST ONの状態からTEST OFF(画面表示)へと切り換わる。</p> | <p>ELディスプレイ画面</p> <p>注意：画面に表示されるプリセット値は、ROMのバージョンによって異なることがある。</p> <div style="border: 1px solid black; padding: 10px;"> <p>RECORDER ADJUSTMENT      1. SERVO DATA PRESET</p> <p>SWP POSITION = 117 (75H) EQ-L-X1 = 64 (40H) REC-L-PCMA1 = 217 (D9H)<br/> EQ-H-X1 = 66 (42H) REC-L-PCMB1 = 217 (D9H)</p> <p>FWD TORQ T = 14 (0EH) EQ-Q-X1 = 59 (3BH) REC-L-ATFA1 = 16 (10H)<br/> FWD TORQ S = 128 (80H) EQ-P-X1 = 44 (2CH) REC-L-ATFB1 = 16 (10H)<br/> REV TORQ T = 65 (41H)<br/> REV TORQ S = 138 (84H) EQ-L-X2 = 21 (15H) REC-T-PCMA1 = 217 (D9H)<br/> OFFSET TORQ = 56 (38H) EQ-H-X2 = 44 (2CH) REC-T-PCMB1 = 217 (D9H)<br/> EQ-Q-X2 = 37 (25H) REC-T-ATFA1 = 16 (10H)<br/> EQ-P-X2 = 21 (15H) REC-T-ATFB1 = 16 (10H)</p> <p>END T HIGH = 128 (80H)<br/> END S HIGH = 128 (80H)<br/> END T LOW = 00 (00H)<br/> END S LOW = 00 (00H)</p> <p>MESSAGE</p> <div style="border: 1px solid black; padding: 5px; text-align: center;">PRESETTING IS COMPLETED!</div> <p>RECORDER: NO TAPE</p> <p>-----</p> <p>TEST OFF</p> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> </div> |

## 2. PLUNGER CHECK (2. プランジャー回路動作確認)

使用機器、治工具；使用せず  
使用テストテープ；使用せず

| 手順   | 確認   |
|--|--|
| <p>(1) <b>[F1]</b>、<b>[F2]</b>キーで“2. PLUNGER CHECK”を選択する。</p> <p>(2) <b>[F1]</b> (TEST ON) キーを押す。</p> <p>(3) プランジャーが動作する音を確認する。<br/>また、ELディスプレイ画面の結果表示を確認する。</p> <p>(4) <b>[F1]</b> キーを押す。</p> | <p>ELディスプレイ画面</p> <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>RECORDER ADJUSTMENT      2. PLUNGER CHECK</p> <p>PLUNGER KICK              PASS</p> <p>PLUNGER RELEASE        PASS</p> <p>RECORDER: NO TAPE</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <p>結果表示：PASS …正常<br/>FAULT …異常</p> |

## 3. MECHANICAL DEVICE TEST (3. メカデバイステスト)

使用機器、治工具；使用せず  
使用テストテープ；空カセット (“2-2-1. 準備”参照)

| 手順  | 確認  |
|---|---|
| <p>(1) <b>[F1]</b>、<b>[F2]</b>キーで“3. MECHA DEVICE TEST”を選択する。</p> <p>(2) <b>[F1]</b> (TEST ON) キーを押す。</p> <p>(3) 空カセットを挿入する。<br/>メカデバイステストが実行され、テスト結果が画面に表示される。表示後、空カセットが自動的にイジェクトされる。</p> <p>(4) 表示を確認後、<b>[F1]</b> キー (TEST OFF) を押す。</p> | <p>ELディスプレイ画面</p> <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>RECORDER ADJUSTMENT      3. MECHANICAL DEVICE TEST</p> <p>CASSETTE UP SWITCH        PASS</p> <p>CASSETTE DOWN SWITCH    PASS</p> <p>ROTARY ENCORDER          PASS</p> <p>DRUM MOTOR                PASS</p> <p>CAPSTAN MOTOR            PASS</p> <p>SUPPLY REEL MOTOR        PASS</p> <p>TAKEUP REEL MOTOR        PASS</p> <p>RECORDER: NO TAPE</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <p>結果表示：PASS …正常<br/>FAULT …異常</p> <p>注意：メカデバイステストモードに設定した場合、1度テストを実行しないと次のモードに移ることができない。</p> |

#### 4. RECOGNITION SWITCH CHECK (4. レコグニションスイッチおよびストップ位置確認)

使用機器、治工具；使用せず

使用テストテープ；テストテープ(01010) ("2-2-1. 準備"参照)

テストテープ(10101) ("2-2-1. 準備"参照)

| 手順  | 確認／規格  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
|---|--|---------------------|-----------------------------|-------------------|-----------|---------------|-----------|---------------|-----------|-------------|-----------|--------------------|-----------|
| <p>(1) <b>[4]</b>、<b>[5]</b>キーで"4. RECOGNITION SWITCH CHECK"を選択する。</p> <p>(2) <b>[F1]</b> (TEST ON) キーを押す。</p> <p>(3) テストテープ(01010)を挿入する。ELディスプレイ画面の表示結果とテストテープ(01010)の識別孔が一致することを確認する。</p> | <p>ELディスプレイ画面</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; width: 50%;">RECORDER ADJUSTMENT</th><th style="text-align: left; width: 50%;">4. RECOGNITION SWITCH CHECK</th></tr> <tr> <td>HOLE-1 (RESERVED)</td><td>OPEN (0)</td></tr> <tr> <td>HOLE-2 (THIN)</td><td>CLOSE (1)</td></tr> <tr> <td>HOLE-3 (WIDE)</td><td>OPEN (0)</td></tr> <tr> <td>HOLE-RECINH</td><td>CLOSE (1)</td></tr> <tr> <td>HOLE-4 (SOFT TAPE)</td><td>OPEN (0)</td></tr> </table> <p>RECORDER: SBOFF</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <div style="text-align: center; margin: 10px 0;"> </div> <p style="text-align: right;">○: OPEN<br/>●: CLOSE</p>  | RECORDER ADJUSTMENT | 4. RECOGNITION SWITCH CHECK | HOLE-1 (RESERVED) | OPEN (0)  | HOLE-2 (THIN) | CLOSE (1) | HOLE-3 (WIDE) | OPEN (0)  | HOLE-RECINH | CLOSE (1) | HOLE-4 (SOFT TAPE) | OPEN (0)  |
| RECORDER ADJUSTMENT   | 4. RECOGNITION SWITCH CHECK  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-1 (RESERVED)   | OPEN (0)   |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-2 (THIN)   | CLOSE (1)  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-3 (WIDE)   | OPEN (0)   |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-RECINH   | CLOSE (1)  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-4 (SOFT TAPE)  | OPEN (0)   |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| <p>(4) <b>[EJECT]</b> キーを押してテストテープ(01010)をイジェクトする。</p> <p>(5) テストテープ(10101)を挿入する。ELディスプレイ画面の表示結果とテストテープ(10101)の識別孔が一致することを確認する。</p>   | <p>ELディスプレイ画面</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; width: 50%;">RECORDER ADJUSTMENT</th><th style="text-align: left; width: 50%;">4. RECOGNITION SWITCH CHECK</th></tr> <tr> <td>HOLE-1 (RESERVED)</td><td>CLOSE (1)</td></tr> <tr> <td>HOLE-2 (THIN)</td><td>OPEN (0)</td></tr> <tr> <td>HOLE-3 (WIDE)</td><td>CLOSE (1)</td></tr> <tr> <td>HOLE-RECINH</td><td>OPEN (0)</td></tr> <tr> <td>HOLE-4 (SOFT TAPE)</td><td>CLOSE (1)</td></tr> </table> <p>RECORDER: SBOFF</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <div style="text-align: center; margin: 10px 0;"> </div> <p style="text-align: right;">○: OPEN<br/>●: CLOSE</p> | RECORDER ADJUSTMENT | 4. RECOGNITION SWITCH CHECK | HOLE-1 (RESERVED) | CLOSE (1) | HOLE-2 (THIN) | OPEN (0)  | HOLE-3 (WIDE) | CLOSE (1) | HOLE-RECINH | OPEN (0)  | HOLE-4 (SOFT TAPE) | CLOSE (1) |
| RECORDER ADJUSTMENT   | 4. RECOGNITION SWITCH CHECK  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-1 (RESERVED)   | CLOSE (1)  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-2 (THIN)   | OPEN (0)   |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-3 (WIDE)   | CLOSE (1)  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-RECINH   | OPEN (0)   |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-4 (SOFT TAPE)  | CLOSE (1)  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| <p>(6) <b>[PLAY]</b> キーを押す。</p>   | <p>確認：①クリーニングローラーがドラムに当り、すぐ離れることを確認する。</p> <p>②キャプスタン軸にピンチローラーが圧着し、回転することを確認する。</p>  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |



mm

|  |  |
|--|--|
| <p>(7) <b>[STOP]</b>キーを押す。</p>                                     | <p>確認：ピンチローラーの停止位置を確認する。<br/>規格：キャプスタン軸とピンチローラーの隙間=1.5mmから2.5mm</p> <div style="text-align: center;"> <p>STOP POSITION      2±0.5ミリ      FWD POSITION</p> <p>← Tape      キャプスタン軸      ← Tape      キャプスタン軸</p> <p>ピンチローラー      ゴムの部分      ピンチローラー      ゴムの部分</p> <p>キャプスタン軸とピンチローラーの<br/>すき間が1.5～2.5mmであること。<br/>〔ピンチローラーのゴムの部分がキャ<br/>プスタン軸カバーに隠れる位置〕</p> </div> |
| <p>(8) <b>[FI]</b> (TEST ON) キーを押す。自動的にテストテープ(10101)がイジェクトされる。</p> |  |

## 5. END SENSOR LEVEL CHECK(HIGH) (5. エンドセンサー動作確認(HIGH))

使用機器、治工具；使用せず  
使用テストテープ；空カセット

| 手順   | 確認／規格   |
|--|---|
| <p>(1) <b>[F]</b>、<b>[E]</b>キーで“5. END SENSOR LEVEL CHECK(HIGH)”を選択する。</p> <p>(2) <b>[FI]</b> (TEST ON) キーを押す。</p> <p>(3) 空カセットを挿入する。<br/>ELディスプレイ画面にセンサーレベルが表示される。センサーレベルが規格を満足することを確認する。</p> <p>(4) <b>[FI]</b> (TEST OFF) キーを押す。自動的に空カセットがイジェクトされる。</p> | <p>ELディスプレイ画面</p> <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>RECORDER ADJUSTMENT      5. END SENSOR LEVEL CHECK(HIGH)</p> <p>T-END SENSOR LEVEL = X.XX V (XXH)</p> <p>S-END SENSOR LEVEL = X.XX V (XXH)</p> <p>RECORDER: SBOFF</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <p>規格：センサーレベル=1.0 V以上</p> |

## 6. END SENSOR LEVEL CHECK (LOW) (6. エンドセンサー動作確認 (LOW))

使用機器、治工具；使用せず

使用テストテープ；テストテープ(エンドセンサー (LOW)) (“2-2-1.準備”参照)

| 手順  | 確認／規格  |
|---|--|
| <p>(1) <b>[F1]</b>、<b>[F2]</b>キーで“6. END SENSOR LEVEL CHECK (LOW)”を選択する。</p> <p>(2) <b>[F1]</b> (TEST ON) キーを押す。</p> <p>(3) テストテープ(エンドセンサー (LOW)) を挿入する。<br/>注意；テストテープ(エンドセンサー (LOW))は、テープの巻き取り中央付近で使用する。<br/>ELディスプレイ画面にセンサーレベルが表示される。センサーレベルが規格を満足することを確認する。</p> <p>(4) <b>[F1]</b> (TEST OFF) キーを押す。自動的にテストテープ(エンドセンサー (LOW)) がイジェクトされる。</p> | <p>ELディスプレイ画面</p> <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>RECORDER ADJUSTMENT      6. END SENSOR LEVEL CHECK (LOW)</p> <p>T-END SENSOR LEVEL = X.XX V (XXH)</p> <p>S-END SENSOR LEVEL = X.XX V (XXH)</p> <p>RECORDER: SBOFF</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <p>規格；センサーレベル=0.2 V 以下</p> |

## 7. DEW SENSOR CHECK (7. DEWセンサーレベル確認)

使用機器、治工具；使用せず

使用テストテープ；使用せず

| 手順  | 確認／規格  |
|---|--|
| <p>(1) <b>[F1]</b>、<b>[F2]</b>キーで“7. DEW SENSOR LEVEL CHECK”を選択する。</p> <p>(2) <b>[F1]</b> (TEST ON) キーを押す。ELディスプレイ画面にセンサーレベルが表示される。センサーレベルが規格を満足していることを確認する。</p> <p>(3) <b>[F1]</b> (TEST OFF) キーを押す。</p> | <p>ELディスプレイ画面</p> <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>RECORDER ADJUSTMENT      7. DEW SENSOR LEVEL CHECK</p> <p>DEW SENSOR LEVEL = X.XX V (XXH)</p> <p>RECORDER: NO TAPE</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <p>規格；センサーレベル=0.1 V &lt; <u>X.XX V</u> &lt; 0.4 V<br/>表示レベル</p> |

# 8. REEL TORQUE CHECK (8. FF/REW最大、最小トルク確認)

使用機器、治工具；使用せず

使用テストテープ；トルクカセット TW-7231

| 手順  | 確認／規格  |
|---|--|
| <p>(1) <b>[F1]</b>、<b>[F2]</b>キーで“8. REEL TORQUE CHECK”を選択する。</p> <p>(2) <b>[F1]</b> (TEST ON) キーを押す。</p> <p>(3) トルクカセット (TW-7231) を挿入する。</p> | <p>ELディスプレイ画面 (TEST ON画面)</p> <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>RECORDER ADJUSTMENT      8. REEL TORQUE CHECK</p> <p>CHECK      OFF</p> <p><input type="checkbox"/> REEL TORQUE CHECK      FF L (1.5V)</p> <p>CHECK      OFF</p> <p>REEL TORQUE CHECK      REW L (1.5V)</p> <p>CHECK      OFF</p> <p>REEL TORQUE CHECK      FF H (4.3V)</p> <p>CHECK      OFF</p> <p>REEL TORQUE CHECK      FF L (4.3V)</p> <p>CHECK      OFF</p> <p>OFFSET      TORQUE</p> <p>RECORDER: SBOFF</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> |
| <p>(4) <b>[F1]</b>、<b>[F2]</b>キーで“REEL TORQUE CHECK FFL”を選択する。</p> <p>トルクカセット (T側リール) のトルク値が規格内 (右記) であることを確認する</p>                           | <p>注意；T=TAKE UPリール側、S=SUPPLYリール側</p> <p>規格；T-REEL トルク=0.0004～0.001 N・m (4～10 g・cm)</p>   |
| <p>(5) <b>[F1]</b>、<b>[F2]</b>キーで“REEL TORQUE CHECK REWL”を選択する。</p> <p>トルクカセット (S側リール) のトルク値が規格内 (右記) であることを確認する</p>                          | <p>規格；S-REEL トルク=0.0004～0.001 N・m (4～10 g・cm)</p>  |
| <p>(6) <b>[F1]</b>、<b>[F2]</b>キーで“REEL TORQUE CHECK FFH”を選択する。</p> <p>トルクカセット (T側リール) のトルク値が規格内 (右記) であることを確認する</p>                           | <p>規格；T-REEL トルク=0.0026 N・m以上 (26 g・cm以上)</p>  |
| <p>(7) <b>[F1]</b>、<b>[F2]</b>キーで“REEL TORQUE CHECK REWH”を選択する。</p> <p>トルクカセット (S側リール) のトルク値が規格内 (右記) であることを確認する</p>                          | <p>規格；S-REEL トルク=0.0026 N・m以上 (26 g・cm以上)</p>  |
| <p>(8) <b>[F1]</b> (TEST OFF) キーを押す。</p> <p>自動的にトルクカセットがイジェクトされる。</p>   |  |

使用テストテープ; トルクカセット TW-7131

## 10. DRUM/CAPSTAN SPEED & WOW CHECK (10. ドラム死点確認)

使用機器、治工具；使用せず

使用テストテープ；空カセット ("2-2-1. 準備" 参照)

| 手順   | 確認／規格   |
|--|---|
| (1) <b>[1]</b> 、 <b>[2]</b> キーで、"10. DRUM/CAPSTAN SPEED & WOW CHECK" を選択する。<br>(2) <b>[F1]</b> (TEST ON) キーを押す。<br>(3) 空カセットを挿入する。 | ELディスプレイ画面<br><div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p>RECORDER ADJUSTMENT      10. DRUM/CAPSTAN SPEED &amp; WOW CHECK</p> <p>DRUM SPEED = 2000 rpm</p> <p>RECORDER: PLAY</p> <hr style="border-top: 1px dashed black;"/> <p>TEST OFF                      SPEED</p> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> </div> |
| (4) <b>[PLAY]</b> キーを押す。   | 確認；ドラムを時計方向にゆっくり回しながら死点のないことを確認する。(指でドラムを止めた時、ドラムのどの位置でも指を離した時、ドラムが回転すること)  |

## 11. TAPE PATH ADJUSTMENT (11. テープパス調整)

### 使用機器、治工具

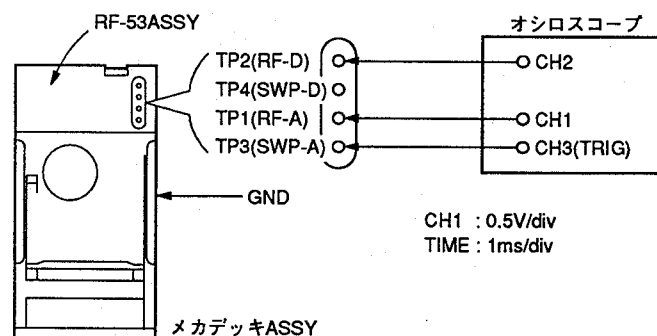
オシロスコープ

調整用ドライバー(J-6225-100-A)

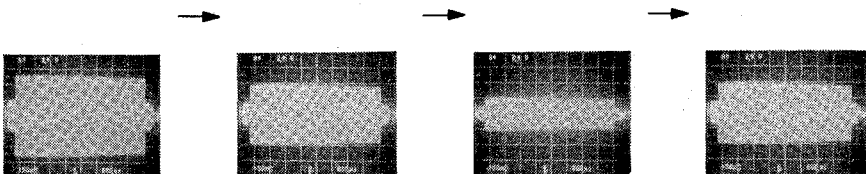
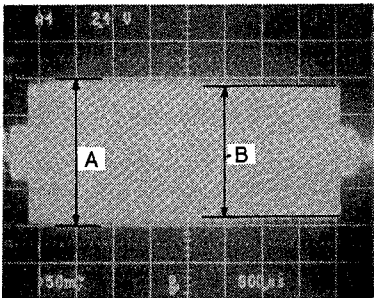
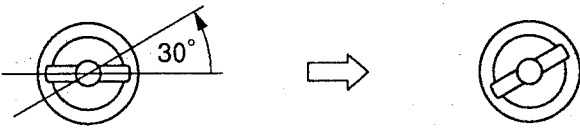
### 使用テストテープ

テストテープ TY-7251

### 接続



| 手順  | 確認/規格  |
|---|--|
| <p>(1) オシロスコープをRF-53 ASSYの下記箇所に接続する。</p> <p>オシロスコープ RF-53 ASSY</p> <p>CH1 → TP1(RF-A)</p> <p>CH2 → TP2(RF-D)</p> <p>(RECORDERのみ)</p> <p>CH3 → TP3(SWP-A, TRIG)</p> <p>GNDは、メカデッキの板金等に接続する。</p> <p>(2) <b>[F1]</b>、<b>[F2]</b>キーで、"11.TAPE PATH ADJUSTMENT"を選択する。</p> <p>(3) <b>[F1]</b>(TEST ON)キーを押す。</p> <p>(4) テストテープ(TY-7251)を挿入する。</p> | <p>ELディスプレイ画面</p> <p>RECORDER ADJUSTMENT 11. TAPE PATH ADJUSTMENT</p> <p>ATF OFFSET = 0%</p> <p>RECORDER: PLAY</p> <p>TEST OFF 0% 50% 100%</p> <p>F 1 F 2 F 3 F 4 F 5 F 6 F 7</p> <p>(5) <b>[PLAY]</b>キーを押す。</p> <p>規格；RF波形(TP1)が四角くなるようにする。</p> <p>RF波形 (TP1)</p> <p>調整；S1ガイド,T1ガイドの高さを調整ドライバー(J-6225-100-A)を使用して微調整する。</p> |

|  |   |
|--|---|
| <p>(6) <b>[F5]</b>(100%)キーを押す。<br/>(ATF OFF)</p>   | <p>確認; RF波形(TP1)が平行に変化することを確認する。</p>  <p>調整; S1ガイド、T1ガイドの高さを調整してRF波形が平行に変化するようにする。</p>  |
| <p>(7) <b>[F4]</b>(50%)キーを押す。<br/>(ATF OFFSET)</p>   | <p>確認; RF波形(TP1)が下記規格を満足することを確認する。</p> <p>規格; ・波高値50%でRFの波形が長方形になること。<br/>・波形フラット部に対する落込みが変動を含めて10%以内</p>  <p>RF波形 (TP1)</p> $\text{規格: } \frac{B}{A} \times 100 (\%) \geq 80\%$ |
| <p>(8) <b>[F3]</b> (0%)キーを押す。(ATF ON)</p> <p>(9) <b>[SHUTTEL(-16)]</b>キーを押す。</p> <p>(10) <b>[PLAY]</b>キーを押した時のRF波形の立ち上がり時間を確認する。</p> | <p>確認(規格); 2秒以内にRF波形(TP1)が安定すること。</p>   |
| <p>(11) <b>[EJECT]</b>キーを押し、テストテープをイジェクトする。</p> <p>(12) テストテープ(TY-7251)を挿入し、<b>[PLAY]</b>キーを押し、RF波形の立ち上がり時間を確認する。</p>                | <p>確認(規格); 2秒以内にRF波形(TP1)が安定すること。</p>   |
| <p>(13) <b>[F1]</b> (TEST OFF)キーを押す。<br/>自動的にテストテープ(TY-7251)がイジェクトされる。</p>   |   |
| <p>(14) <b>PLAYER</b>メカデッキの場合はS1ガイドの高さを調整する。</p>   | <p>調整; S1ガイドを調整ドライバー(J-6225-100-A)を使用して反時計方向に30°回転させる。</p>  <p>S1ガイド</p>  |





### 13. PATH & FF/REW TIME CHECK (13. テープ走行確認およびテープカール確認)

#### 使用機器、治工具

オシロスコープ

#### 使用テストテープ

テストテープ(TOP) ("2-2-1. 準備"参照)

テストテープ(END) ("2-2-1. 準備"参照)

テストテープ(FF/REW TIME) ("2-2-1. 準備"参照)

#### 接続

"11.TAPE PATH ADJUSTMENT"に同じ

| 手順  | 調整/確認/規格   |
|---|--|
| <p>(1) オシロスコープをRF-53 ASSYの下記箇所に接続する。</p> <p>オシロスコープ RF-53 ASSY</p> <p>CH1 → TP1(RF-A)</p> <p>CH3 → TP3(SWP-A, TRIG)</p> <p>(2) <b>[F1]</b>、<b>[F2]</b>キーで、"13. FF/REW TIME CHECK"を選択する。</p> <p>(3) <b>[F1]</b> (TEST ON)キーを押す。</p> <p>(4) テストテープ(TOP)を挿入する。</p> | <p>ELディスプレイ画面</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p>RECORDER ADJUSTMENT      13. PATH &amp; FF/REW TIME CHECK</p> <p>FF TIME = 0 SEC</p> <p>REW TIME = 0 SEC</p> <p>RECORDER: NO TAPE</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> |
| <p>(5) SHUTTLE (+1) (<b>[LOCATE]</b> キー) および SHUTTLE (-1) (<b>[PGM SEARCH]</b> キー)を交互に繰り返し押す。</p> <p>テープ走行が規格を満足することを確認する。</p>  | <p>規格; ピンチローラーの前後で、テープ折れやガイドからのテープ脱落がないこと。</p>   |
| <p>(6) SHUTTLE (+16) (<b>[NEXT]</b> キー) および SHUTTLE (-16) (<b>[PREVIOUS]</b> キー)を交互に繰り返し押す。</p> <p>テープ走行が規格を満足することを確認する。</p>  | <p>規格; ピンチローラーの前後で、テープ折れやガイドからのテープ脱落がないこと。</p>   |
| <p>(7) <b>[EJECT]</b>キーを押してテストテープ(TOP)をイジェクトする。</p> <p>(8) テストテープ(END)を挿入する。</p> <p>(9) SHUTTLE (+1) (<b>[LOCATE]</b> キー) および SHUTTLE (-1) (<b>[PGM SEARCH]</b> キー)を交互に繰り返し押す。この時のテープ走行が規格を満足することを確認する。</p>   | <p>規格; ピンチローラーの前後で、テープ折れやガイドからのテープ脱落がないこと。</p>   |

|   |  |
|---|--|
| (10) SHUTTLE (+16) ( <b>NEXT</b> キー)および SHUTTLE (-16) ( <b>PREVIOUS</b> キー)を交互に繰り返し押し。この時のテープ走行が規格を満足することを確認する。 | 規格；ピンチローラーの前後で、テープ折れやガイドからのテープ脱落がないこと。   |
| (11) <b>EJECT</b> キーを押してテストテープ(END)をイジェクトする。<br><br>(12) テストテープ (FF/REW TIME) を挿入する。                            |  |
| (13) <b>REW</b> キーまたは、 <b>FF</b> キーでFF動作、REW動作を行い、テープ巻き取り時間が規格を満足することを確認する。                                     | 規格；・FF動作テープ巻取り時間=20秒以内<br>REW動作テープ巻取り時間=20秒以内<br>・FFおよびREW中にテープの当り抜けが発生しないことを、オシロスコープのRF波形で確認すること。 |
| (14) <b>F1</b> (TEST OFF) キーを押す。<br>自動的にテストテープ (FF/REW TIME) がイジェクトされる。   |  |

#### 14. PB ERROR RATE CHECK (14. 再生エラーレート確認)

##### 使用機器、治工具

オシロスコープ


##### 使用テストテープ

テストテープ TY-7212

注意：1. ERROR RATE測定は必ず天板を取り付けて行う。

2. 確認を行う前に、クリーニングテープを使用して、10秒間クリーニングする。

| 手順   | 調整/確認/規格   |
|--|--|
| (1) <b>F1</b> 、 <b>F2</b> キーで、"14. PB ERROR RATE CHECK"を選択する。<br><br>(2) <b>F1</b> (TEST ON) キーを押す。<br><br>(3) テストテープ (TY-7212) を挿入する。 | ELディスプレイ画面 <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <div style="display: flex; justify-content: space-between;"> <div> RECORDER ADJUSTMENT<br/> <input type="checkbox"/> EQ-X1-L = 64 (40H)<br/> EQ-X1-H = 66 (42H)<br/> EQ-X1-Q = 59 (3BH)<br/> EQ-X1-P = 44 (2CH)<br/><br/> EQ-X2-L = 21 (15H)<br/> EQ-X2-H = 44 (2CH)<br/> EQ-X2-Q = 37 (25H)<br/> EQ-X2-P = 21 (15H) </div> <div> 14. PB ERROR RATE CHECK<br/><br/> PB SPEED            X1<br/><br/> PB HEAD            LEADING<br/><br/> ERROR RATE        A-CH X.XE-X<br/>                       B-CH X.XE-X<br/><br/> RECORDER: PLAY      TIME CODE: 00:10:58:40<br/> -----<br/> TEST OFF            HEAD            ↑            ↓<br/><br/> F 1      F 2      F 3      F 4      F 5      F 6      F 7 </div> </div> </div> |
| (4) <b>PLAY</b> キーを押す、規格を満足することを確認する。  | 規格；再生エラーレート A-CH=5×10 <sup>-3</sup> 以下<br>(表示: 5E-3以下)<br>再生エラーレート B-CH=5×10 <sup>-3</sup> 以下<br>(表示: 5E-3以下)  |

|  |  |
|--|--|
| <p>(5) STOP キーを押す。</p> <p>(6) <b>[F1]</b>、<b>[F2]</b> キーで"EQ-X2-L"を選択する。(2倍速モードになる)</p> <p>(7) <b>[PLAY]</b> キーを押し、規格を満足することを確認する。</p>   | <p>規格；再生エラーレートA-CH=<math>5 \times 10^{-3}</math>以下<br/>(表示: 5E -3以下)</p> <p>再生エラーレートB-CH=<math>5 \times 10^{-3}</math>以下<br/>(表示: 5E -3以下)</p>   |
| <p>(8) <b>[STOP]</b> キーを押す。</p> <p>注意；PLAYERデッキの場合は、(15)以降の確認へ進む。</p>  |  |
| <p>以下の確認は、RECORDERデッキのみ行う。</p> <p>(9) <b>[F4]</b>(HEAD)キーを押し、画面の"PB HEAD TRAILING"を確認する。</p> <p>(10) <b>[PLAY]</b> キーを押し、規格を満足することを確認する</p>  | <p>規格；再生エラーレートA-CH=<math>5 \times 10^{-3}</math>以下<br/>(表示: 5E -3以下)</p> <p>再生エラーレートB-CH=<math>5 \times 10^{-3}</math>以下<br/>(表示: 5E -3以下)</p>   |
| <p>(11) <b>[STOP]</b> キーを押す。</p> <p>(12) <b>[F1]</b>、<b>[F2]</b> キーで"EQ-X1-P"を選択する。(ノーマルスピードモード)</p> <p>(13) <b>[PLAY]</b> キーを押し、規格を満足することを確認する。</p>   | <p>規格；再生エラーレートA-CH=<math>5 \times 10^{-3}</math>以下<br/>(表示: 5E -3以下)</p> <p>再生エラーレートB-CH=<math>5 \times 10^{-3}</math>以下<br/>(表示: 5E -3以下)</p>   |
| <p>(14) <b>[STOP]</b> キーを押す。</p> <p>(15) オシロスコープをRF-53 ASSYの下記箇所に接続する。</p> <p>オシロスコープ RF-53 ASSY</p> <p>&lt;RECORDERの場合&gt;</p> <p>CH1 → TP2(RF-D)</p> <p>CH3 → TP4(SWP-D, TRIG)</p> <p>&lt;PLAYERの場合&gt;</p> <p>CH1 → TP1(RF-A)</p> <p>CH3 → TP3(SWP-A, TRIG)</p> <p>(16) SHUTTLE (-2) <b>[F4]</b> キーを押す。</p> | <p>確認；RF波形(TP2)が下記規格を満足することを確認する。</p> <p>規格；RF波形の立ち上がり2sec以内</p> <div style="display: flex; align-items: center; justify-content: space-around;"> <div style="text-align: center;"> <p>CH1 : TP2(RF-D)<br/>or<br/>TP1(RF-A)</p>  </div> <div style="text-align: center;"> <math display="block">\frac{B}{A} \cong \frac{5}{10}</math> <math display="block">\frac{C}{A} \cong \frac{5}{10}</math> </div> </div> <p>波形が10秒間安定していることを確認する。</p> |
| <p>(17) <b>[REW]</b> キーを押す。</p>  |  |
| <p>(18) SHUTTLE (-2) <b>[F4]</b> キーを押す。</p>  |  |
| <p>(19) <b>[F1]</b>(TEST OFF)キーを押す。</p> <p>自動的にテストテープ TY-7212 がイジェクトする。</p>  |  |

# 15. REC CURRENT ADJUSTMENT(LEADING) (15. 記録レベル調整(先行ヘッド)(RECORDERデッキのみ))

## 使用機器、治工具

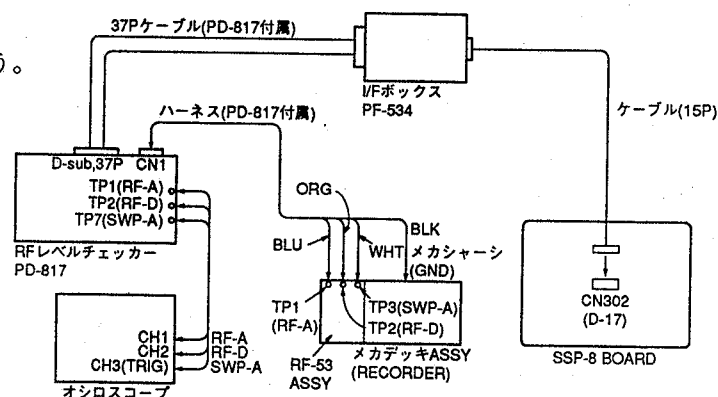
オシロスコープ  
 RFレベルチェッカー PD-817  
 RFレベルチェッカー用 I/Fボックス PF-534

## 使用テストテープ

テストテープ TY-7111DX  
 テストテープ TY-30BX

## 接続

接続は、PCM-E7700のPOWERスイッチをOFFにして行う。  
 RF-534のケーブル(15P)のCN302/SSP-8基板への接続は、  
 キーパネルASSYを外して行う。  
 調整は、ケーブル(15P)を、はさまないようにして、  
 キーパネルASSYを本体に取り付けてから行う。



| 手順   | 調整／確認／規格  |                                     |       |                                     |  |             |       |     |       |             |       |     |       |             |       |     |       |             |       |     |       |               |  |                                  |  |          |  |   |  |
|--|---|-------------------------------------|-------|-------------------------------------|--|-------------|-------|-----|-------|-------------|-------|-----|-------|-------------|-------|-----|-------|-------------|-------|-----|-------|---------------|--|----------------------------------|--|----------|--|---|--|
| <p>(1) <b>[F1]</b>、<b>[F2]</b>キーで、"15. REC CURRENT ADJUSTMENT (LEADING)"を選択する。</p> <p>(2) <b>[F1]</b> (TEST ON)キーを押す。</p> <p>(3) テストテープ(TY-7111DX)を挿入する。</p> <p>(4) テストテープ(TY-7111DX)に添付されている校正値表に従って、校正値をRFレベルチェッカー(PD-817)のOFF SETダイヤルで設定する。*1</p> <p>(5) <b>[PLAY]</b>キーを押す。</p> <p>RF波形(オシロスコープ)が安定することを確認する。</p> <p>(6) RFレベルチェッカー(PD-817)の<b>[CAL]</b>キーを押す。</p> | <p>ELディスプレイ画面</p> <div><table><tr><td colspan="2">RECORDER ADJUSTMENT</td><td colspan="2">15. REC CURRENT ADJUSTMENT(LEADING)</td></tr><tr><td>REC CURRENT</td><td>PCM-A</td><td>XXX</td><td>(XXH)</td></tr><tr><td>REC CURRENT</td><td>PCM-B</td><td>XXX</td><td>(XXH)</td></tr><tr><td>REC CURRENT</td><td>ATF-A</td><td>XXX</td><td>(XXH)</td></tr><tr><td>REC CURRENT</td><td>ATF-B</td><td>XXX</td><td>(XXH)</td></tr><tr><td colspan="2">RECORDER: REC</td><td colspan="2">TIME CODE: 0 0 : 1 0 : 5 8 : 4 0</td></tr><tr><td colspan="2">TEST OFF</td><td colspan="2">↑    </td></tr></table></div> | RECORDER ADJUSTMENT                 |       | 15. REC CURRENT ADJUSTMENT(LEADING) |  | REC CURRENT | PCM-A | XXX | (XXH) | REC CURRENT | PCM-B | XXX | (XXH) | REC CURRENT | ATF-A | XXX | (XXH) | REC CURRENT | ATF-B | XXX | (XXH) | RECORDER: REC |  | TIME CODE: 0 0 : 1 0 : 5 8 : 4 0 |  | TEST OFF |  | ↑ |  |
| RECORDER ADJUSTMENT  |   | 15. REC CURRENT ADJUSTMENT(LEADING) |       |                                     |  |             |       |     |       |             |       |     |       |             |       |     |       |             |       |     |       |               |  |                                  |  |          |  |   |  |
| REC CURRENT  | PCM-A   | XXX                                 | (XXH) |                                     |  |             |       |     |       |             |       |     |       |             |       |     |       |             |       |     |       |               |  |                                  |  |          |  |   |  |
| REC CURRENT  | PCM-B   | XXX                                 | (XXH) |                                     |  |             |       |     |       |             |       |     |       |             |       |     |       |             |       |     |       |               |  |                                  |  |          |  |   |  |
| REC CURRENT  | ATF-A   | XXX                                 | (XXH) |                                     |  |             |       |     |       |             |       |     |       |             |       |     |       |             |       |     |       |               |  |                                  |  |          |  |   |  |
| REC CURRENT  | ATF-B   | XXX                                 | (XXH) |                                     |  |             |       |     |       |             |       |     |       |             |       |     |       |             |       |     |       |               |  |                                  |  |          |  |   |  |
| RECORDER: REC  |   | TIME CODE: 0 0 : 1 0 : 5 8 : 4 0    |       |                                     |  |             |       |     |       |             |       |     |       |             |       |     |       |             |       |     |       |               |  |                                  |  |          |  |   |  |
| TEST OFF   |   | ↑                                   |       |                                     |  |             |       |     |       |             |       |     |       |             |       |     |       |             |       |     |       |               |  |                                  |  |          |  |   |  |

|  |  |
|--|--|
| <p>(7) CAL 終了後、RFレベルチェッカー (PD-817)の[<b>CAL</b>]キーのLED が点滅から点灯に変わったら、<b>[EJECT]</b>キーを押して、テスト テープ(TY-7111DX)をイジェクト させる。</p>   |  |
| <p>(8) テストテープ(TY-30BX, プランク 部分)を挿入する。</p> <p>(9) RFレベルチェッカー(PD-817)の <b>[LEADING (A/B)]</b>キーを押す。<br/>先行ヘッドのPCM/ATF(Ach, Bch) 記録電流レベルの自動測定(自己 記録・再生)が行われる。</p> <p>(10) 自動測定終了後(<b>[LEADING]</b>キー のインジケータが点滅から点灯 に変わる)、記録レベルがRFレ ベルチェッカーのレベルメー ターに表示される。記録レベル が規格を満足するように手順(8), (9), (10)を繰り返す行う。</p> <p>(11) <b>[FI]</b>(TEST OFF)キーを押す。<br/>自動的にテストテープ(TY- 30BX)がイジェクトされる。</p> | <p>規格；PCM-AおよびPCM-Bの記録レベル=0.5±0.5 dB<br/>ATF-AおよびATF-Bの記録レベル=-0.5±0.5 dB<br/>RFレベルチェッカーのレベルメーター表示</p> <div style="text-align: center;"> </div> <p>調整；<b>[F1]</b>、<b>[F4]</b>キーで規格外の項目を選択し、<b>[F6]</b>および<b>[F7]</b>キーで以下のように調整する。<br/>記録レベルを上げるには<b>[F6]</b> (UP) キーを押す。<br/>記録レベルを下げるには<b>[F7]</b> (DOWN) キーを押す</p> |

#### \*1: オフセットダイヤルの設定

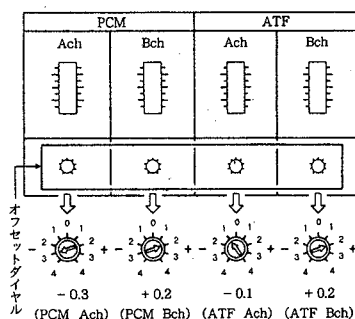
使用するテストテープ(TY-7111DX)に添付の校正値表に従って、1.57 MHz, 130 kHzのAch/Bchの校正値をRF LEVEL CHECKER のオフセットダイヤルで設定する。

#### 設定例

校正値表の表示

|            | 130.7(kHz) | 1.568(MHz) |
|------------|------------|------------|
| <b>Ach</b> | 0.1        | -0.3       |
| <b>Bch</b> | +0.2       | +0.2       |

オフセットダイヤルの設定(上記の校正値の場合)



# 16. REC CURRENT ADJUSTMENT (TRILING) (16. 記録レベル調整(後行ヘッド) (RECORDERデッキのみ))

## 使用機器、治工具

オシロスコープ

RFレベルチェッカー PD-817

RFレベルチェッカー用 I/Fボックス PF-534

## 使用テストテープ

テストテープ TY-30BX

テストテープ TY-7111DX

## 接続

“15.REC CURRENT ADJUSTMENT (LEADING)”に同じ

| 手順  | 調整／確認／規格   |                                       |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |
|---|--|---------------------------------------|--|---------------------------------------|--|-------------|-------|----|--|-------------|-------|----|--|-------------|-------|----|--|-------------|-------|----|--|
| <p>(1) <b>[F1]</b>、<b>[F2]</b>キーで、“16. REC CURRENT ADJUSTMENT (TRAILING)”を選択する。</p> <p>(2) <b>[F1]</b> (TEST ON) キーを押す。</p> <p>(3) テストテープ(TY-7111DX)を挿入する。</p> <p>(4) テストテープ(TY-7111DX)に添付されている校正値表に従って、校正値をRFレベルチェッカー (PD-817) のOFF SETダイヤルで設定する。*(2-22ページ参照)</p> <p>(5) <b>[PLAY]</b> キーを押す。<br/>RF波形 (オシロスコープ) が安定することを確認する。</p> <p>(6) RFレベルチェッカー (PD-817) の<b>[CAL]</b> キーを押す。</p> <p>(7) CAL終了後、RFレベルチェッカー (PD-817) の<b>[CAL]</b> キーのLEDが点滅から点灯に変わったら、<b>[EJECT]</b> キーを押して、テストテープ(TY-7111DX)をイジェクトさせる。</p> | <p>ELディスプレイ画面</p> <div><table><tr><td colspan="2">RECORDER ADJUSTMENT</td><td colspan="2">16. REC CURRENT ADJUSTMENT (TRAILING)</td></tr><tr><td>REC CURRENT</td><td>PCM-A</td><td colspan="2">XX</td></tr><tr><td>REC CURRENT</td><td>PCM-B</td><td colspan="2">XX</td></tr><tr><td>REC CURRENT</td><td>ATF-A</td><td colspan="2">XX</td></tr><tr><td>REC CURRENT</td><td>ATF-B</td><td colspan="2">XX</td></tr></table><div><div>RECORDER: REC</div><div>TIME CODE: 00:10:58:40</div></div><div>-----</div><div>TEST OFF</div><div><div>↑</div><div>↓</div></div><div><div>F 1</div><div>F 2</div><div>F 3</div><div>F 4</div><div>F 5</div><div>F 6</div><div>F 7</div></div></div> | RECORDER ADJUSTMENT                   |  | 16. REC CURRENT ADJUSTMENT (TRAILING) |  | REC CURRENT | PCM-A | XX |  | REC CURRENT | PCM-B | XX |  | REC CURRENT | ATF-A | XX |  | REC CURRENT | ATF-B | XX |  |
| RECORDER ADJUSTMENT   |  | 16. REC CURRENT ADJUSTMENT (TRAILING) |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |
| REC CURRENT   | PCM-A  | XX                                    |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |
| REC CURRENT   | PCM-B  | XX                                    |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |
| REC CURRENT   | ATF-A  | XX                                    |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |
| REC CURRENT   | ATF-B  | XX                                    |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |

(8) テストテープ(TY-30BX、ブランク部分)を挿入する。

(9) RFレベルチェッカー(PD-817)の

**TRAILING(A/B)**キーを押す。後行ヘッドのPCM/ATF(Ach, Bch)記録電流レベルの自動測定(自己記録・再生)が行われる。

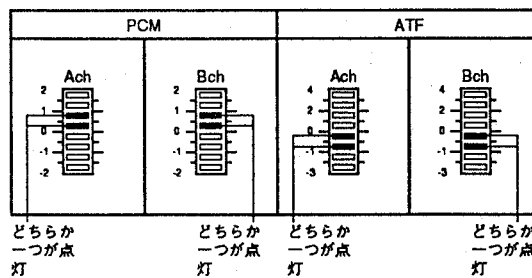
(10) 自動測定終了後(**TRILING**キーのインジケータが点滅から点灯に変わる)、記録レベルがRFレベルチェッカーのレベルメーターに表示される。記録レベルが規格を満足するように手順(8)、(9)、(10)を繰り返し行う。

(11) **F1** (TEST OFF)キーを押す。自動的にテストテープ(TY-30BX)がイジェクトされる。

規格; PCM-AおよびPCM-Bの記録レベル= $0.5 \pm 0.5$  dB

ATF-AおよびATF-Bの記録レベル= $-0.5 \pm 0.5$  dB

RFレベルチェッカーのレベルメーター表示



調整; **F1**、**F2** キーで規格外の項目を選択し、**F6**および**F7**キーで以下のように調整する。  
記録レベルを上げるには**F6** (UP) キーを押す。  
記録レベルを下げるには**F7** (DOWN) キーを押す。

# 17. REC/PB ERROR RATE CHECH (17. 自己記録再生エラーレート確認))

使用機器、治工具；使用せず

使用テストテープ；テストテープTY-30BX

注意：1. REC/PB ERROR RATE 測定は、必ず天板を取り付けて行う。

2. 確認を行う前に、クリーニングテープを使用して、クリーニングを行う。

| 手順  | 調整／確認／規格   |
|---|--|
| (1) <b>[F1]</b> 、 <b>[F2]</b> キーで“17. REC/PB ERROR RATE CHECK”を選択する。<br>(2) <b>[F1]</b> (TEST ON) キーを押す。<br>(3) テストテープ(TY-30BX)を挿入する。<br>(4) 画面の“REC HEAD LEADING”を確認する。  | ELディスプレイ画面<br><div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <div style="display: flex; justify-content: space-between;"> <span>RECORDER ADJUSTMENT</span> <span>17. REC/PB ERROR RATE CHECK</span> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <p>REC SPEED X1</p> <p>REC HEAD LEADING</p> <p>ERROR RATE (TRAILING) A-CH X.XE-X<br/>B-CH X.XE-X</p> </div> <div> <p>RECORDER: REC</p> <p>TIME CODE: 00:10:58:40</p> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span>TEST OFF</span> <span>SPEED</span> <span>HEAD</span> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>F 1</span> <span>F 2</span> <span>F 3</span> <span>F 4</span> <span>F 5</span> <span>F 6</span> <span>F 7</span> </div> |
| (5) <b>[PLAY]</b> キーを押す。<br>(6) <b>[AUTO EDIT]</b> キーを押し、先行記録(X1)中の後行再生エラーレートが規格を満足することを確認する。   | 規格；エラーレート A-CH=5E-3 (画面表示)<br>(5×10 <sup>-3</sup> 以下)<br>B-CH=5E-3 (画面表示)<br>(5×10 <sup>-3</sup> 以下)   |
| (7) <b>[STOP]</b> キーを押す。<br>(8) <b>[F3]</b> (SPEED) キーを押して“REC SPEED X2”を選択する。<br>(9) <b>[PLAY]</b> キーを押す。<br>(10) <b>[AUTO EDIT]</b> キーを押し、先行記録(X2)中の後行再生エラーレートが規格を満足することを確認する。  | 規格；エラーレート A-CH=5E-3 (画面表示)<br>(5×10 <sup>-3</sup> 以下)<br>B-CH=5E-3 (画面表示)<br>(5×10 <sup>-3</sup> 以下)   |
| (11) <b>[STOP]</b> キーを押す。<br>(12) <b>[F3]</b> (SPEED) キーを押して“REC SPEED X1”を選択する。<br>(13) <b>[F4]</b> (HEAD) キーを押す。画面の“REC HEAD TRAILING”を確認する。<br>(14) <b>[PLAY]</b> キーを押す。<br>(15) <b>[AUTO EDIT]</b> キーを押し、20秒間記録する。<br>(16) <b>[STOP]</b> キーを押す。 |  |



|   |  |
|---|--|
| <p>(17) SHUTTLE(-2) ([4]) キーを押して、記録開始部分まで巻き戻す。<br/>注意；巻き戻しは、ディスプレイ画面のTIME CODEを目安に行う。</p> <p>(18) [PLAY] キーを押して、後行記録部分を再生し、再生エラーレートが規格を満足することを確認する。</p> | <p>規格；エラーレート A-CH=5E-3 (画面表示)<br/>(<math>5 \times 10^{-3}</math>以下)<br/>B-CH=5E-3 (画面表示)<br/>(<math>5 \times 10^{-3}</math>以下)</p> |
| <p>(19) [STOP] キーを押す。</p> <p>(20) [F1] (TEST OFF) キーを押す。<br/>自動的にテストテープ(TY-30BX)がイジェクトされる。</p>  |  |

## 18. SERVO DATA SAVE (18. サーボデータセーブ)

使用機器、治工具；使用せず  
使用テストテープ；使用せず

| 手順  | 確認  |
|---|---|
| <p>(1) SV-147基板のS1-2(BIT SW2)スイッチを“ON”にし、ディスプレイ画面(調整項目表示画面)の右上で確認する。</p> <p>(2) [F1]、[F2] キーで“18. SERVO DATA SAVE”を選択する。</p> <p>(3) [F1] (TEST ON) キーを押す。<br/>ディスプレイ画面のMESSAGE；<br/>“SAVING IS COMPLETED!”を確認する。</p> <p>(4) 確認後、[F1] (TEST OFF) キーを押す。</p> <p>(5) SV-147基板のS1スイッチを以下のように設定する。<br/>S1-1 to S1-4：すべてOFF</p> | <p>ELディスプレイ画面</p> <div> <p>RECORDER ADJUSTMENT      18. SERVO DATA SAVE</p> <p>SWP POSITION = 117 (75H) EQ-L-X1 = 64 (40H) REC-L-PCMA1 = 217 (D9H)<br/>EQ-H-X1 = 66 (42H) REC-L-PCMB1 = 217 (D9H)<br/>FWD TORQ T = 14 (0EH) EQ-Q-X1 = 59 (3BH) REC-L-ATFA1 = 16 (10H)<br/>FWD TORQ S = 128 (80H) EQ-P-X1 = 44 (2CH) REC-L-ATFB1 = 16 (10H)<br/>REV TORQ T = 65 (41H)<br/>REV TORQ S = 138 (8AH) EQ-L-X2 = 21 (15H) REC-T-PCMA1 = 217 (D9H)<br/>BACK TENTION = 56 (38H) EQ-H-X2 = 44 (2CH) REC-T-PCMB1 = 217 (D9H)<br/>EQ-Q-X2 = 37 (25H) REC-T-ATFA1 = 16 (10H)<br/>EQ-P-X2 = 21 (15H) REC-T-ATFB1 = 16 (10H)<br/>END T HIGH = 128 (80H)<br/>END S HIGH = 128 (80H)<br/>END T LOW = 00 (00H)<br/>END S LOW = 00 (00H)</p> <p>MESSAGE</p> <div>SAVING IS COMPLETED!</div> <p>RECORDER: NO TAPE</p> <p>TEST OFF</p> <p>F 1    F 2    F 3    F 4    F 5    F 6    F 7</p> </div> |

19. SERVO DATA DISPLAY (19. サーボデータディスプレイ)

使用機器、治工具；使用せず  
使用テストテープ；使用せず

注意：サーボデータディスプレイは、サーボデータの確認などに使うモードである。  
調整中にサーボデータディスプレイを実行することによりその調整値を確認することができる。

| 手順   | 確認  |
|--|---|
| <p>(1) <b>[F1]</b>、<b>[F2]</b>キーで“19. SERVO DATA DISPLAY”を選択する。</p> <p>(2) <b>[F1]</b>(TEST ON)キーを押す。</p> <p>(3) ディスプレイ画面上のサーボデータを<br/>確認する。</p> <p>(4) <b>[F2]</b>(EXIT)キーを押す</p> | <p>ELディスプレイ画面</p> <div><div>RECORDER ADJUSTMENT</div><div>19. SERVO DISPLAY</div><div>SWP POSITION = 117 (75H) EQ-L-X1 = 64 (40H) REC-L-PCMA1 = 217 (D9H)<br/>EQ-H-X1 = 66 (42H) REC-L-PCMB1 = 217 (D9H)<br/>FWD TORQ T = 14 (0EH) EQ-Q-X1 = 59 (3BH) REC-L-ATFA1 = 16 (10H)<br/>FWD TORQ S = 128 (80H) EQ-P-X1 = 44 (2CH) REC-L-ATFB1 = 16 (10H)<br/>REV TORQ T = 65 (41H)<br/>REV TORQ S = 138 (8AH) EQ-L-X2 = 21 (15H) REC-T-PCMA1 = 217 (D9H)<br/>BACK TENTION = 56 (38H) EQ-H-X2 = 44 (2CH) REC-T-PCMB1 = 217 (D9H)<br/>EQ-Q-X2 = 37 (25H) REC-T-ATFA1 = 16 (10H)<br/>EQ-P-X2 = 21 (15H) REC-T-ATFB1 = 16 (10H)<br/>END T HIGH = 128 (80H)<br/>END S HIGH = 128 (80H)<br/>END T LOW = 00 (00H)<br/>END S LOW = 00 (00H)</div><div>RECORDER: NO TAPE</div><div>EXIT</div><div>F 1 F 2 F 3 F 4 F 5 F 6 F 7</div></div> |

### 2-2-3. SV-147基板交換時の確認

SV-147基板を交換した際、交換後、メカデッキASSYを本体に取り付ける前に以下の確認を必ず行う。

#### 使用機器、治工具

使用せず

#### 使用テストテープ

空カセット("2-2-1.準備"参照)

#### サーボマイコン動作確認

- (1) SV-147基板のBITスイッチ(S1-3)をONにする。
- (2) 本体の電源(POWER)をONにする。
- (3) SV-147基板のLED(D1)が、1秒周期で点滅していることを確認する。
- (4) 空カセットを挿入し、SV-147基板のBITスイッチ(S1-1)をONにする。
- (5) 空カセットがイジェクトされることを確認し、BITスイッチ(S1-1)をOFFにする。

以上の確認終了後、"2-2. 調整および確認"に従って調整、確認を行う。

## 第3章 電気調整

ここでは、ADA-31基板の修理および保守を行う際に必要な電気調整について述べる。

ADA-31基板の調整は、下記“調整項目”について行う。

### 調整項目

#### 3-1. A/D、D/A系調整(ADA-31基板)

##### 3-1-1. A/D変換レベル調整



##### 3-1-2. D/A変換レベル調整

### 使用機器

| 名称          | 規格  | 機器名  |
|-------------|---|--|
| オーディオアナライザー | ・AFオシレータ<br>レンジ；10 to 100 kHz<br>レベル；-70 to +24 dBm<br>・ディストーションアナライザー<br>(レベルメーター) | TEKRONIX<br>SG505(OP2)、<br>AA501または<br>相当品 |

#### 3-1. A/D、D/A系調整(ADA-31基板)

##### 準備

- ・本調整は、天板およびキーASSYを外して行う。  
ただし、キーASSYからのハーネスは接続したままとする。  
(外し方は、“MAINTENANCE MANUAL Part1”参照)
- ・以下の手順でMODE設定を行った後、調整を行う。  
(設定方法は、“OPERATION GUIDE”を参照)

##### 手順

- (1) SET UPモード(ELディスプレイ画面)(SUB MODE；SYSTEM)の“FACTORY SETTING”(工場出荷時の設定データ)を呼び出す。
- (2) MANUAL RECモード(ELディスプレイ画面)のSUB MODE；EXT ANALOG(外部入力モード)に設定する。

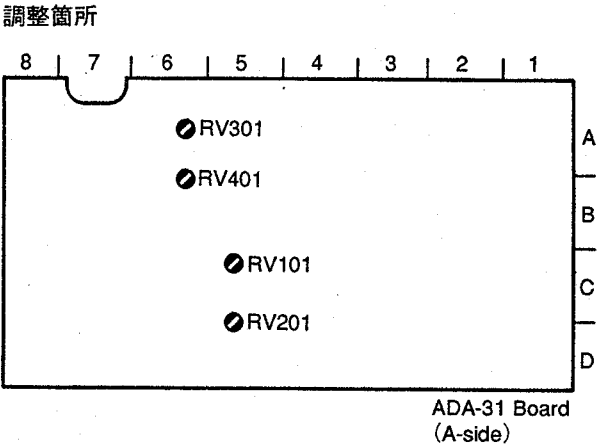
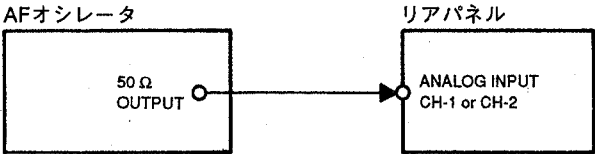
以下の調整は、このモードで行う。

3-1-1. A/D変換レベル調整

ここでは、ADA-31基板のA/Dブロックの電気調整を行う。  
ADA-31基板を交換した際、最初に行う。  
引き続き“3-1-2. D/A変換レベル調整”を行う。

使用機器  
オーディオアナライザー (AFオシレーター)

接続



調整前の準備

- ファンクションキー **[F7]** “METER”を押して、METER表示を数値表示にする。
- GAIN表示がCH1、CH2共“0.0 dB”表示であることを確認する。  
0.0 dB表示になっていない場合、ファンクションキー **[F6]** “BAL RES”および **[F7]** “LVL RES”を押して、GAIN表示を0.0 dBにする。

| ステップ | 調整時の状態                                       | 規格                         | 調整箇所 (ADA-31 基板) |
|------|--|----------------------------|------------------|
| 1    | ・ ANALOG IN CH1コネクタに<br>1 kHz、4 dBsの信号を入力する。 | METER表示CH1の数値；<br>-20.0 dB | ●RV101 (C、5)     |
| 2    | ・ ANALOG IN CH2コネクタに<br>1 kHz、4 dBsの信号を入力する。 | METER表示CH2の数値；<br>-20.0 dB | ●RV201 (D、5)     |

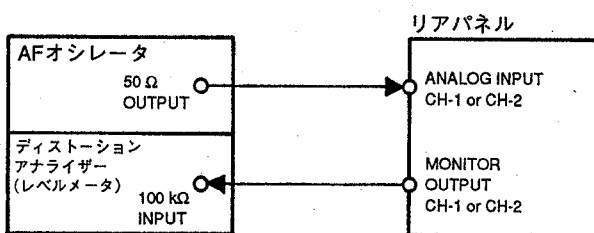
### 3-1-2. D/A変換レベル調整

ここでは、ADA-31基板のD/Aブロックの電気調整を行う。  
調整は、“3-1-1. A/D変換レベル調整”の後に行う。

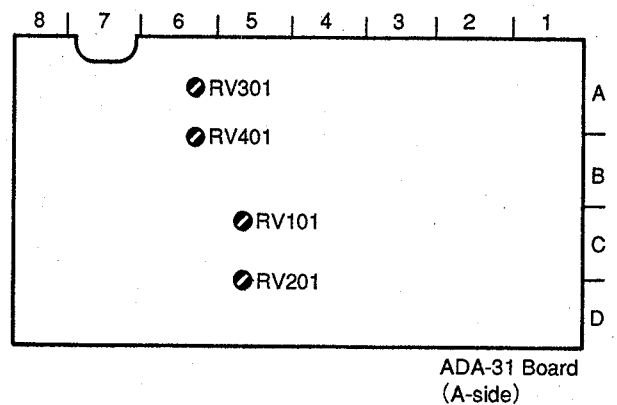
#### 使用機器

オーディオアナライザ (AFオシレーター、  
ディストーションアナライザ  
(レベルメータ))

#### 接続



#### 調整箇所



| ステップ | 調整時の状態                                       | 規格   | 調整箇所 (ADA-31 基板) |
|------|--|--|------------------|
| 1    | ・ ANALOG IN CH1コネクタに<br>1 kHz、4 dBsの信号を入力する。 | MONITOR OUTPUT CH1<br>出力レベル；<br>-10 dBs±0.5 dB | ●RV301 (A、6)     |
| 2    | ・ ANALOG IN CH2コネクタに<br>1 kHz、4 dBsの信号を入力する。 | MONITOR OUTPUT CH2<br>出力レベル；<br>-10 dBs±0.5 dB | ●RV401 (B、6)     |



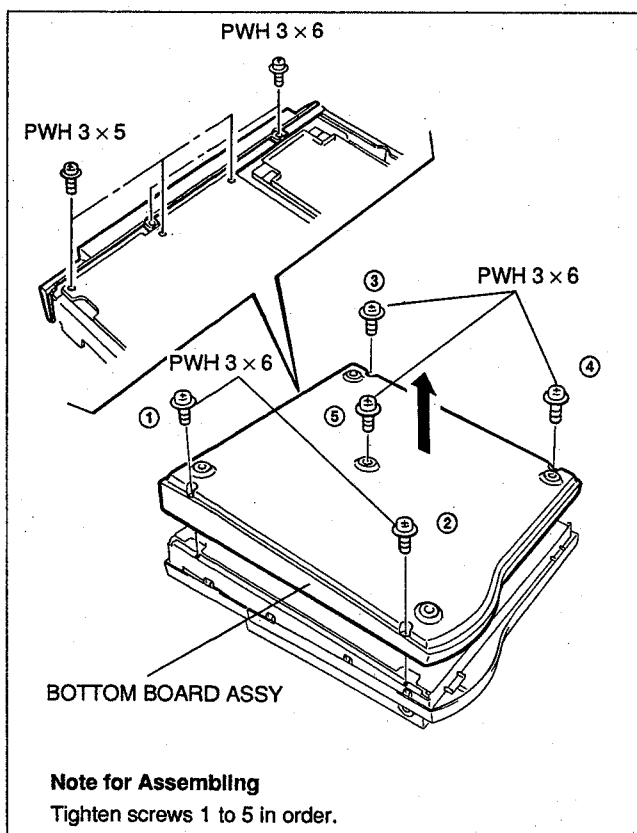
## SECTION 1 SERVICE OVERVIEW

### 1-1. REPLACEMENT OF DC FAN MOTOR

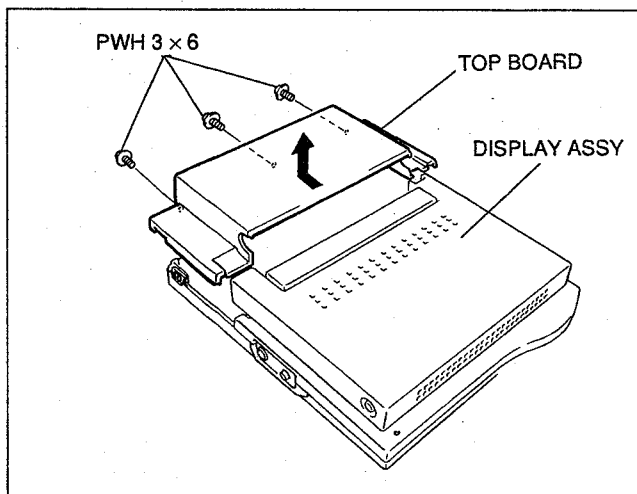
**Note:** Turn off the power supply switch and disconnect the power cord.

**Procedure:**

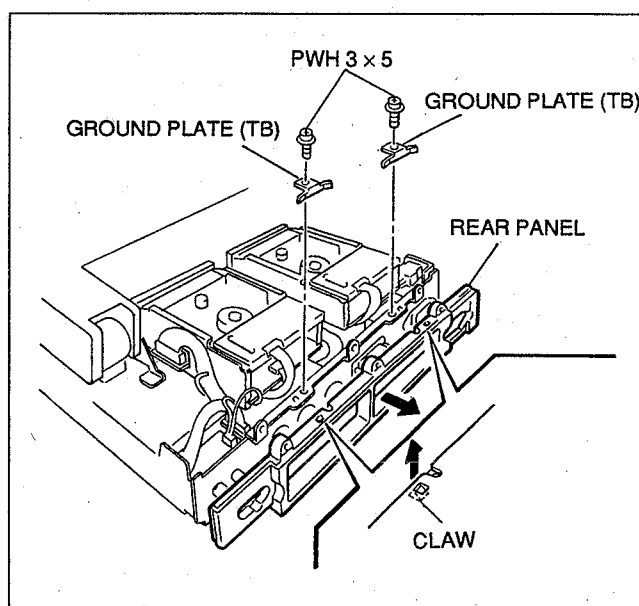
- (1) Remove the five screws (PWH3 × 6) and remove the bottom board assembly.  
Next, remove the five screws (PWH3 × 5).



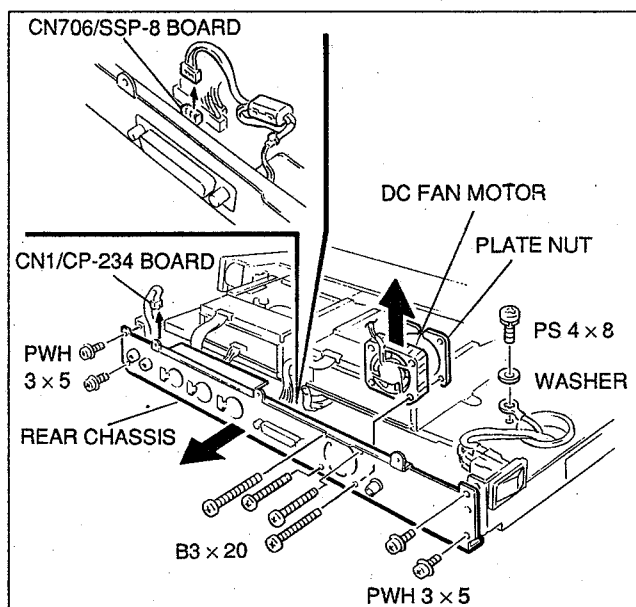
- (2) Remove the three screws (PWH3 × 6), slide the top board backwards and remove it upwards.



- (3) Remove the two screws (PWH3 × 5) and the ground plate (TB).  
Remove the two claws and the rear panel.



- (4) Remove the CN1/CP-234 board and the five screws (PWH3 × 5, PS4 × 8), and pull out the rear chassis. Remove the harness from the CN706 connector of the SSP-8 board and remove the four screws (B3 × 20). Remove the DC fan motor and replace it with a new one.





## 1-2. SERVICE INFORMATION ON SSP-8 BOARD

### 1-2-1. LEDs for Checking Operations on SSP-8 Board

The SSP-8 board has the following LEDs for checking operations. Their functions are as follows.

D106 (RED): Lights up when the I/O CPU (IC103) fails  
(When operating normally: Off)

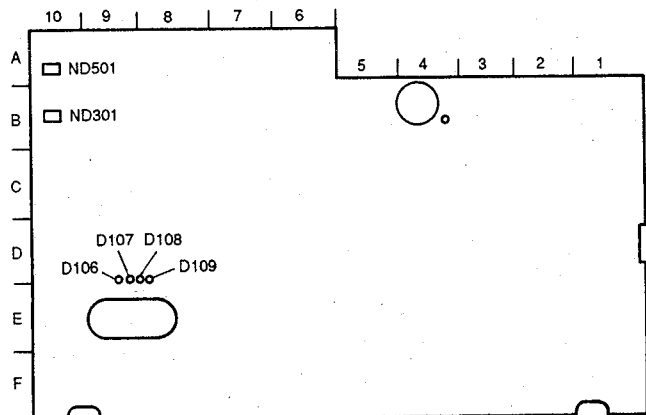
D107 (RED): Lights up when GDC (IC125) fails  
(When operating normally: Off)

D108 (YELLOW): Lights up when the EEROM (IC115) is accessing

D109 (GREEN): Blinks when the I/O CPU block is operating normally  
(At intervals of approximately 0.2s)

ND301: Display stops when the player CPU block is not operating normally

ND501: Display stops when the recorder CPU block is not operating normally



SSP-8 Board  
(Component side)

### 1-2-2. Replacement of Lithium Battery (CR-2450)

The life of the lithium battery (CR-2450) incorporated in the SSP-8 board for backing up the battery will not be displayed. Therefore replace it according to how long the unit has been used, etc.

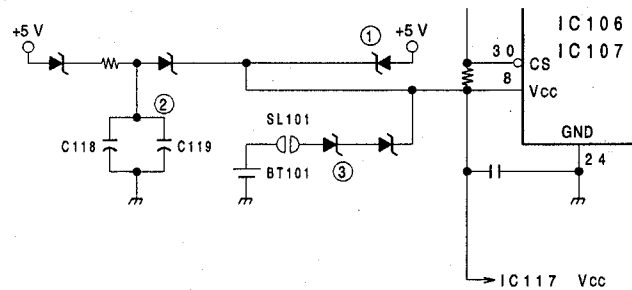
Standard time for replacement: Approximately every 3 years.

Replace it as follows.

#### Part Name:

Lithium battery (CR-2450): 1 (Part No: 1-528-229-11)

#### Outline of Operations



In the above circuit, the +5 V of Vcc and the +5 V pull up resistance of the CS are supplied to IC106, IC107, and IC117 by three power supplies.

They are:

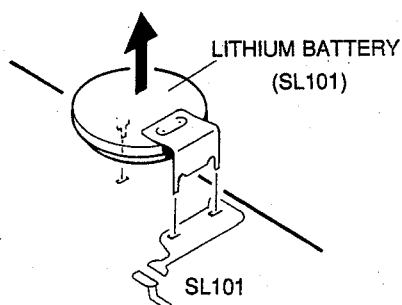
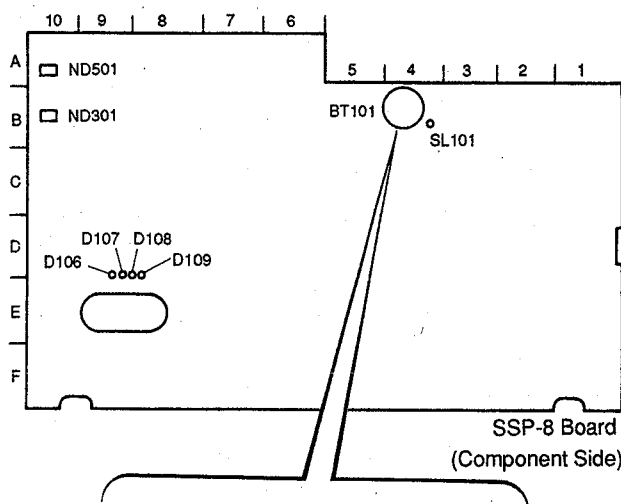
- ① Main power supply
- ② +5 V from C118 and C119 charged by the main power supply
- ③ +3 V from BT101

- While the unit is operating, they will be supplied by ①.
- ② will be charged at the same time.
- When the unit is turned off, they will be supplied by ②.
- When ② has discharged all its power, power will be supplied by ③.

The SRAM data of IC106 and IC107 and the clock of IC117 are backed up in this way.

### Replacing Procedure

- (1) Turn on the power switch of PCM-E7700 and let the power flow for more than ten minutes.
- (2) Turn off the power switch.
- (3) Remove the SSP-8 board from the unit.  
For details of removing, refer to "SECTION 3. CABINET REMOVAL" and "SECTION 6-2. EXPLODED VIEWS AND PARTS" in Maintenance Manual Part 1.
- (4) Desolder the slit land (SL101) on the component side of the SSP-8 board.
- (5) Remove the lithium battery (BT101) from the SSP-8 board.
- (6) Install the new lithium battery (CR-2450) to the SSP-8 board.
- (7) Solder (solder bridge) the slit land (SL101).

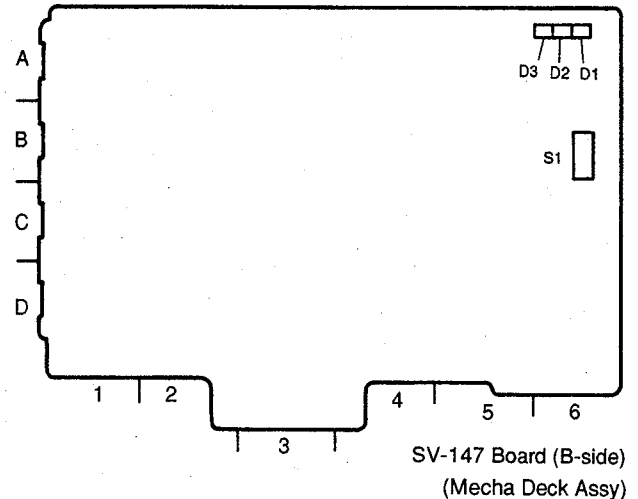


- (8) Attach the SSP-8 board to the unit.
- (9) Turn on the power switch.
- (10) Check that no error message is displayed when started up.

### Note:

- The SRAM and clock data will be destroyed if the pins of IC106, IC107, and IC117 are short-circuited during the replacement.
- Check that the voltage of the new battery is more than 2.6 V before the replacement.

### 1-3. SWITCH SETTING/LED FUNCTION ON SV-147 BOARD



### Switches

S1 (S1-1 to S1-4); Adjustment Mode Setting Switch  
(For details, refer to "Section 2. Replacement and Adjustment of Mechanism Deck")

### Factory setting

S1-1 to S1-4; All OFF  
(Setting for normal operations)

### LED

D1; CPU Operation Indicator

Blinking (Approx. every 1 sec.) ..... When operating normally

Blinking quickly  
(Approx. every 0.5 sec.) ..... When an error is detected

Lit or off ..... When not operating

D2; Adjusting Mode Indicator

Lit .... When adjustment mode is ON

Off ... When adjustment mode is OFF

D3; Servo Lock Indicator

Lit .... Locked

Off ... Unlocked

## 1-4. NOTES ON REPAIR PARTS

### 1-4-1. Notes on Repair Parts

#### (1) Safety Related Components Warning

Components marked with  $\Delta$  on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

#### (2) Standardization of Parts

Repair parts supplied from Sony Parts Center may not be always identical with the parts which actually in use due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts".

This manual's exploded views and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present".

#### (3) Change of Parts

Regarding engineering parts changes, refer to "CHANGED PARTS"

#### (4) Stock of Parts

Parts marked with "o" SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

#### (5) Units for Capacitors and Resistors

The following units may be assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.

Capacitors :  $\mu\text{F}$

Resistors :  $\Omega$

### 1-4-2. Replacement Procedure for Chip Parts

#### Required Tools

Soldering iron: 20W If possible, use a soldering iron tip heat-controller at  $270 \pm 10^\circ\text{C}$ .

Braided wire: SOLDER TAUL or equivalent  
Sony part No. 7-641-300-81

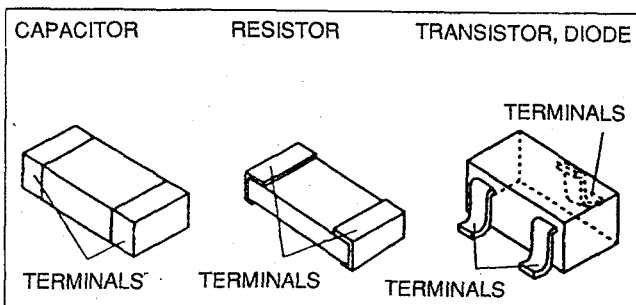
Solder: 0.6 mm dia. is recommended.

Tweezers

#### Soldering Conditions

Soldering iron temperature:  $270 \pm 10^\circ\text{C}$ .

Soldering time: less than two seconds per a pin.



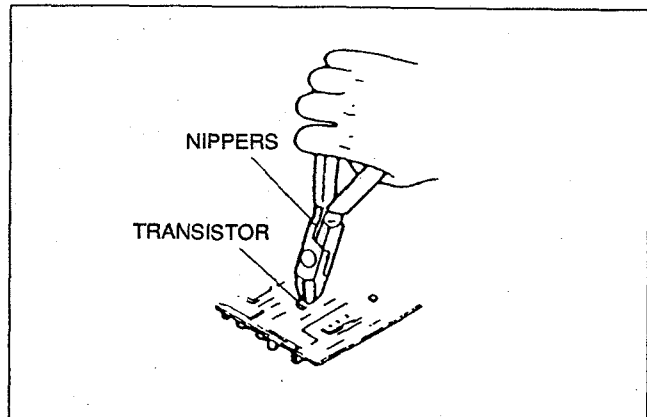
#### • Resistor and Capacitor Replacement

- (1) Place the soldering iron tip onto the chip part and heat it up until the solder is melted. When the solder is melted, slide the chip part aside.
- (2) Make sure that there is no pattern peeling, damage and/or bridges around the desoldering positions.
- (3) After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
- (4) Place new chip part in the desired position and solder both ends.

**NOTE:** Once a chip part has been removed, never use it again.

#### • Transistor and Diode Replacement

- (1) Cut the terminals of the chip part with a nipper.
- (2) Remove the cut leads.
- (3) Make sure that there is no pattern peeling, damage and/or bridges around the desoldering positions.
- (4) After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
- (5) Place new chip part in the desired position and solder the terminals.



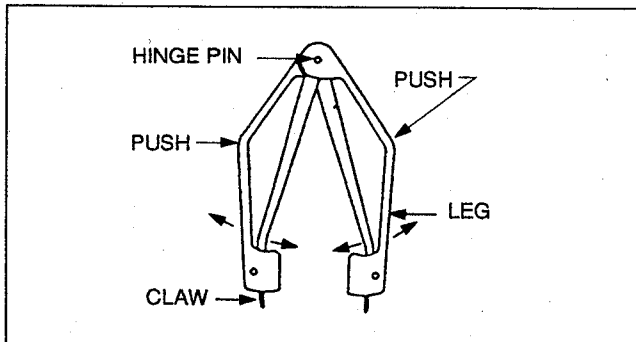
#### • IC Replacement

- (1) Using the braided wire, "SOLDER TAUL" Sony Part No. 7-641-300-81, remove the solder around the pins of the IC-chip to be removed.
- (2) While heating up the pins, remove the pins one by one using sharp-pointed tweezers.
- (3) Make sure that there is no pattern peeling, damage and/or bridges around the desoldering positions.
- (4) After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
- (5) Place new chip part in the desired position and solder the pins.

### 1-4-3. Removal of PLCC IC

The Extraction Tool is useful for removing the IC (PLCC type) inserted into an IC socket. This is useful for all sizes of ICs 20 pins through 124 pins.

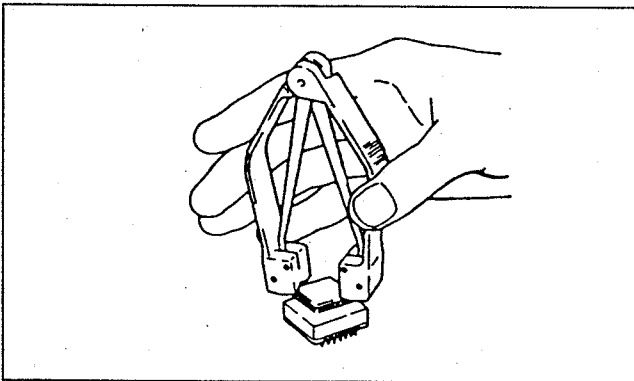
Extraction Tool (for PLCC socket)  
Sony Part No. J-6035-070-A



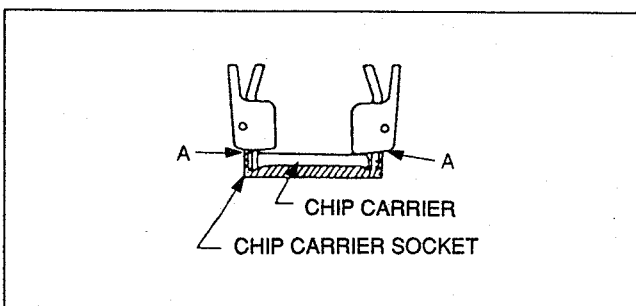
**Note:**

- Never pull chips of IC upward with the Extraction Tool.
- Never hold the Extraction Tool on a strong force.

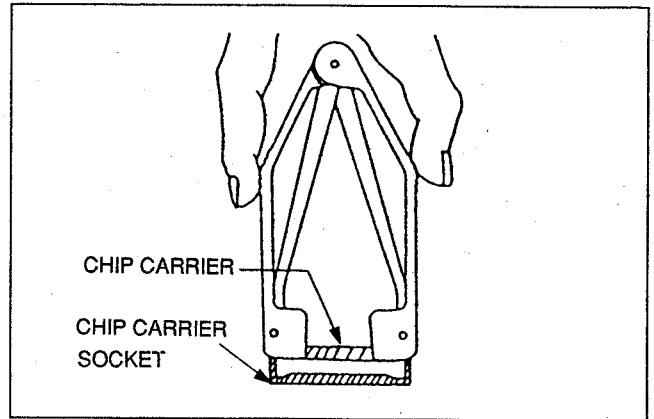
(1) Adjust which so that claws of the tool are matched to the socket of an IC.



(2) Insert the claws of the tool into the slots of the socket, and then press the tool against the socket so that the A portion shown in the figure contact to the socket.



(3) Hold the tool as shown in the figure. The socket is pressed on a little force to downward.



(4) Pinch the tool, so the legs of the tool are straightened. At that time, the claws pinch the chips of the IC and pull the IC upward.

(5) After pulling the IC, loosen the force of the fingers, and take off the chip.

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 5.25V so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20V AC range are suitable. (See Fig. A)

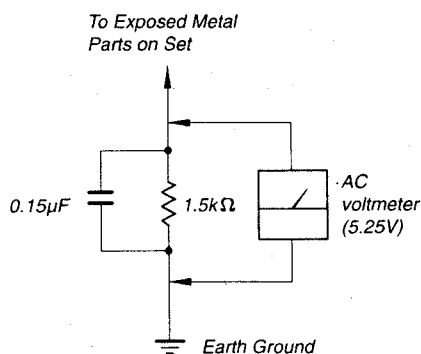


Fig. A. Using an AC voltmeter to check AC leakage.

## CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.  
Dispose of used batteries according to the manufacturer's instructions.

## SECTION 2

### REPLACEMENT AND ADJUSTMENT OF MECHANISM DECK

#### 2-1. REPLACEMENT OF MECHANICAL DECK ASSY AND PARTS

Replace the parts to replace periodically (refer to item "4-2" in Maintenance Manual Part 1) following the table below.

- The parts required to remove when replacing the parts to replace periodically are signified with "○".
- The figures in the circles signify the removing order of the parts required to remove.
- Assemble the parts in the reverse order of the removal. After replacement, proceed to "2-2. ALIGNMENT AND CHECK".

**Note:** Be sure to turn the POWER switch OFF during the operation.

| Parts to Replace<br>Periodically        | Parts Required to Remove |                      |                     |                   |              |                       |              |                 |                           |            |
|---|--------------------------|----------------------|---------------------|-------------------|--------------|-----------------------|--------------|-----------------|---------------------------|------------|
|   | RF SHIELD CASE (TOP)     | CASSETTE WINDOW ASSY | MD SIDE PLATE (L) ① | MD SIDE PLATE (R) | RF-53 ASSY ② | FLEXIBLE SHIELD PLATE | SV-147 BOARD | MD SHIELD PLATE | CASSETTE COMPARTMENT ASSY | REEL MOTOR |
| MECHANICAL DECK (PLAYER) ASSY           | —                        | —                    | —                   | —                 | —            | —                     | —            | —               | —                         | —          |
| MECHANICAL DECK (RECORDER) ASSY         | —                        | —                    | —                   | —                 | —            | —                     | —            | —               | —                         | —          |
| DRUM ASSY (4ch)<br>DOU-21A-R (PLAYER)   | ①                        | ②                    | ③                   | ④                 | ⑤            | ⑥                     | ⑦            | ⑧               | —                         | —          |
| DRUM ASSY (2ch)<br>DOU-22A-R (RECORDER) | ①                        | ②                    | ③                   | ④                 | ⑤            | ⑥                     | ⑦            | ⑧               | —                         | —          |
| CAPSTAN MOTOR<br>U-21A                  | —                        | ①                    | ②                   | ③                 | —            | —                     | ④            | ⑤               | —                         | —          |
| REEL MOTOR                              | —                        | ①                    | ②                   | ③                 | —            | —                     | ④            | ⑤               | —                         | —          |
| PINCH ROLLER ASSY                       | —                        | ①                    | ②                   | ③                 | —            | —                     | ④            | ⑤               | ⑥                         | ⑦          |
| DRIVE MOTOR ASSY                        | ①                        | ②                    | ③                   | ④                 | ⑤            | —                     | ⑥            | ⑦               | —                         | —          |
| HC ROLLER                               | —                        | —                    | —                   | —                 | —            | —                     | —            | —               | —                         | —          |
| ROTARY ENCODER                          | —                        | ①                    | ②                   | ③                 | —            | —                     | ④            | ⑤               | —                         | —          |
| CASSETTE COMPARTMENT ASSY               | —                        | ①                    | ②                   | ③                 | —            | —                     | ④            | ⑤               | —                         | —          |

#### PROCEDURE

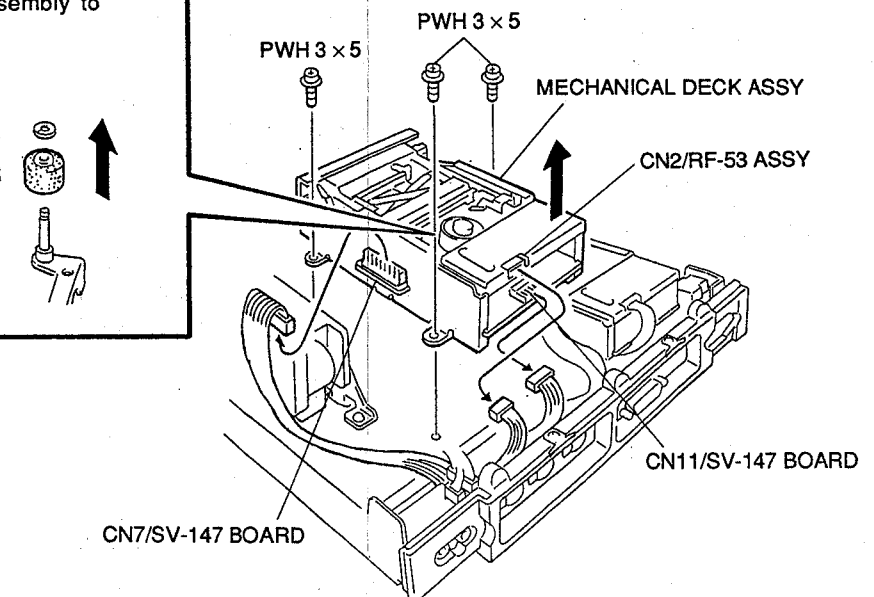
##### HC Roller, Mechanism Deck ASSY

Remove the top board.  
(Refer to 1-1. "REPLACEMENT OF DC FAN MOTOR")

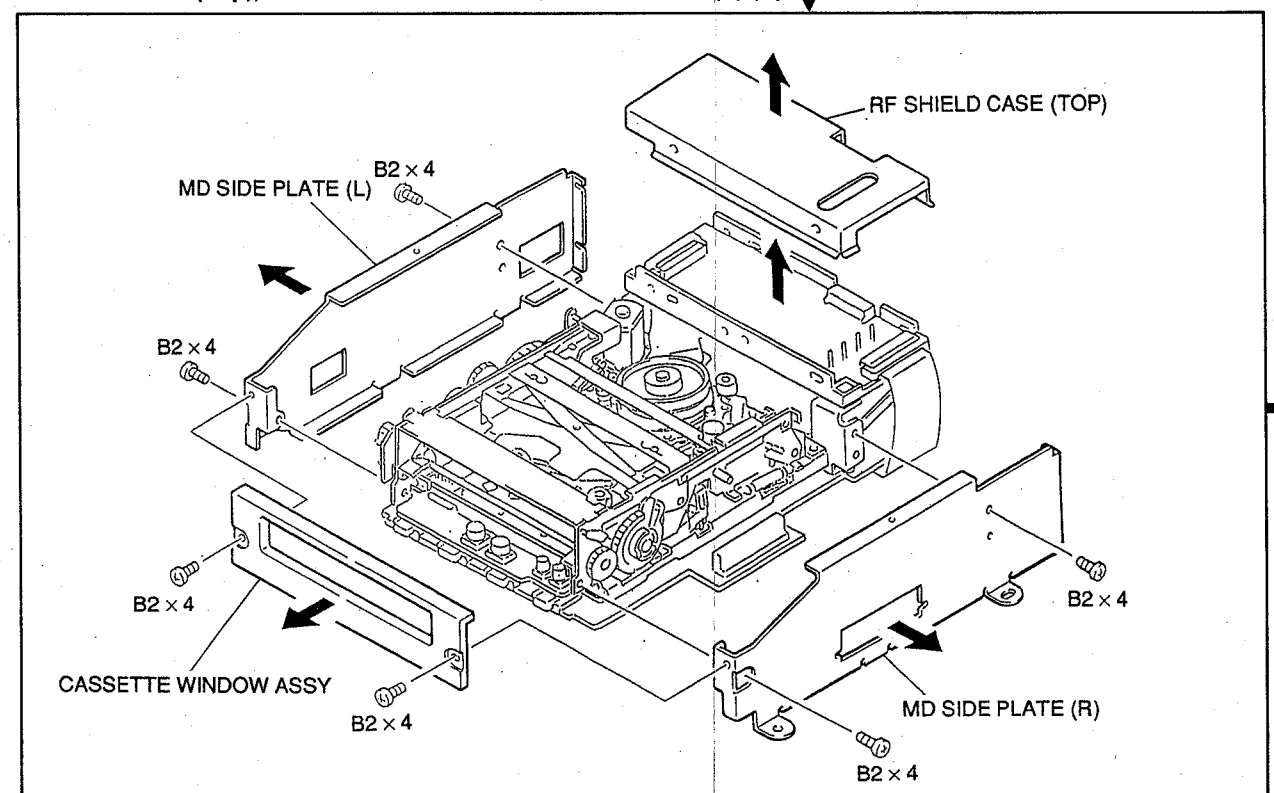
- Removing the HC roller.

**Note:** It is not necessary to remove the Mechanical Deck Assembly to replace the HC Roller.  
When removing the HC roller, be careful not to scratch the drum.

STOPPER WASHER  
HC ROLLER



#### RF Shield Case (Top), Cassette Window ASSY, MD side Plate (L)/(R)





## 第2章 メカデッキの交換および調整

### 2-1. メカデッキASSY およびメカデッキ部品(定期交換部品)の交換方法

定期交換部品(MAINTENANCE MANUAL Part 1. “4-2.”項参照)の交換は下表に従って行う。

- ・ 定期交換部品を交換する際に、取り外す必要のある部品を○印で示す。  
また、○印の中の数字は、取り外しの必要な部品の取り外し順序を表す。
- ・ 部品の組立ては取り外しの逆の手順で行う。交換後は“2-2.調整および確認”を行う。

注意：作業は、POWERスイッチをOFFにして行う。

| 定期交換部品                                | 取り外しの必要な部品               |                   |                   |                 |                    |                  |              |                 |                              |             |
|---------------------------------------|--------------------------|-------------------|-------------------|-----------------|--------------------|------------------|--------------|-----------------|------------------------------|-------------|
|                                       | RF<br>シールド<br>ケース<br>(上) | カセット<br>窓<br>ASSY | MD<br>側板<br>(L) ① | MD<br>側板<br>(R) | RF-53<br>ASSY<br>② | フレキ<br>シールド<br>板 | SV-147<br>基板 | MD<br>シールド<br>板 | カセット<br>コンパート<br>メント<br>ASSY | リール<br>モーター |
| メカデッキ(PLAYER) ASSY                    | —                        | —                 | —                 | —               | —                  | —                | —            | —               | —                            | —           |
| メカデッキ(RECORDER) ASSY                  | —                        | —                 | —                 | —               | —                  | —                | —            | —               | —                            | —           |
| ドラムASSY (4ch)<br>DOU-21A-R (PLAYER)   | ①                        | ②                 | ③                 | ④               | ⑤                  | ⑥                | ⑦            | ⑧               | —                            | —           |
| ドラムASSY (2ch)<br>DOU-22A-R (RECORDER) | ①                        | ②                 | ③                 | ④               | ⑤                  | ⑥                | ⑦            | ⑧               | —                            | —           |
| キャプスタンモータ、<br>U-21A                   | —                        | ①                 | ②                 | ③               | —                  | —                | ④            | ⑤               | —                            | —           |
| リールモータ                                | —                        | ①                 | ②                 | ③               | —                  | —                | ④            | ⑤               | —                            | —           |
| ピンチローラASSY                            | —                        | ①                 | ②                 | ③               | —                  | —                | ④            | ⑤               | ⑥                            | ⑦           |
| ドライブモータASSY                           | ①                        | ②                 | ③                 | ④               | ⑤                  | —                | ⑥            | ⑦               | —                            | —           |
| HCローラー                                | —                        | —                 | —                 | —               | —                  | —                | —            | —               | —                            | —           |
| ロータリーエンコーダー                           | —                        | ①                 | ②                 | ③               | —                  | —                | ④            | ⑤               | —                            | —           |
| カセットコンパートメント<br>ASSY                  | —                        | ①                 | ②                 | ③               | —                  | —                | ④            | ⑤               | —                            | —           |

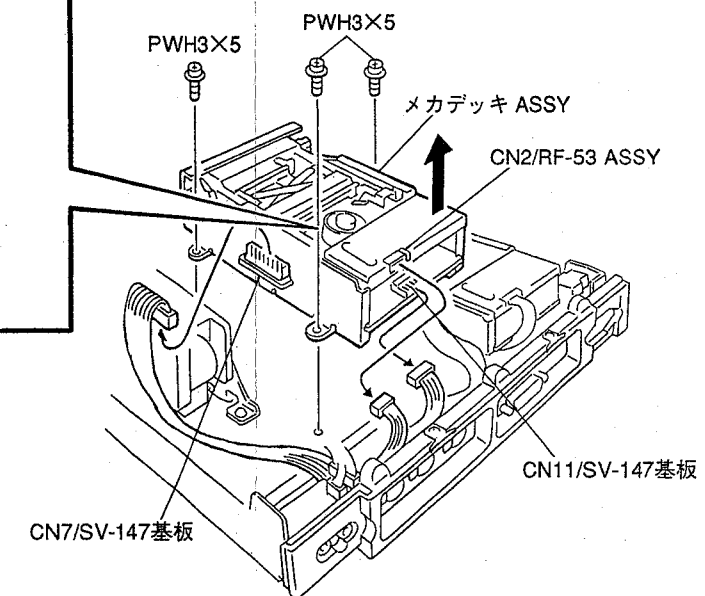
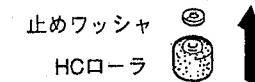
#### 手順

##### HCローラ、メカデッキASSY

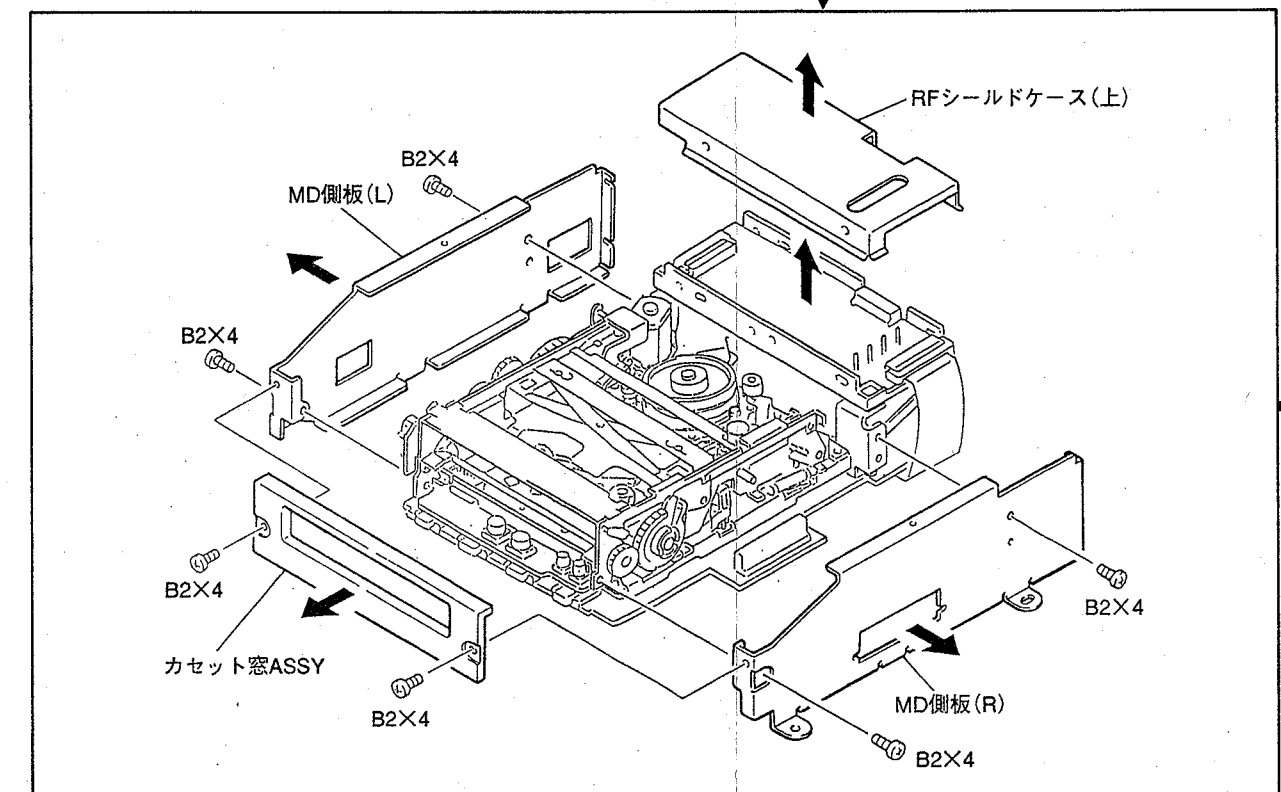
- ・ 天板を外す。(1-1. DCファンモータの交換参照。)
- ・ HCローラの取り外し

注意：HCローラの交換は、  
メカデッキASSYを取り外す  
必要はない。

HCローラを取り外す際は、ドラムに  
傷を付けないよう注意する。



##### RFシールドケース(上)、カセット窓ASSY、MD側板(L)/(R)







## 2-2. ADJUSTMENTS AND CHECKS

After replacing the mechanical deck assembly and its parts (parts to be replaced periodically), perform adjustments and checks according to the Table A (next page).

When performing the adjustments and checks, use the unit's built-in service menu and mount the mechanical deck assembly onto the unit.

### Setting the Service Menu

- (1) Set the BIT switches (S1) of the SV-147 board as follows.

S1/SV-147 board settings

S1-3 ; ON

S1-1, -2, -4 ; OFF

- (2) Turn on the power switch.
- (3) Press the **[SHIFT]** key + **[MODE]** key
- (4) simultaneously.  
(Setting the service menu)

EL display

| SERVICE MENU |                                     |      |        |
|--------------|-------------------------------------|------|--------|
| 1            | PLAYER MECHANICAL DECK ADJUSTMENT   |      |        |
| 2            | RECORDER MECHANICAL DECK ADJUSTMENT |      |        |
| 3            | TEST                                |      |        |
| 4            | INFORMATION                         |      |        |
| P-MD         | R-MD                                | TEST | INFORM |
| F 1          | F 2                                 | F 3  | F 4    |
| F 5          | F 6                                 | F 7  |        |

**Note:** F1 to F7; Function keys

- (4) When adjusting the PLAYER mechanical deck; Press the **[F1]** (P-MD) key.

When adjusting the RECORDER mechanical deck; Press the **[F2]** (R-MD) key.

EL display

(**Note:** The display is for RECORDER ADJUSTMENT)

| RECORDER ADJUSTMENT |                                | SERVO BOARD BIT SW |
|---------------------|--------------------------------|--------------------|
| 1                   | SERVO DATA PRESET              | BIT1 OFF MAN EJECT |
| 2                   | PLUNGER CHECK                  | BIT2 OFF EEPROM EN |
| 3                   | MECHA DEVICE TEST              | BIT3 ON ERROR CUT  |
| 4                   | RECOGNITION SWITCH CHECK       | BIT4 OFF           |
| 5                   | END SENSOR LEVEL CHECK(HIGH)   |                    |
| 6                   | END SENSOR LEVEL CHECK(LOW)    |                    |
| 7                   | DEW SENSOR CHECK               |                    |
| 8                   | REEL TORQUE CHECK              |                    |
| 9                   | FWD/RVS TORQUE ADJUSTMENT      |                    |
| 10                  | DRAM/CAPSTAN SPEED & WOW CHECK |                    |
| MESSAGE             |                                |                    |
| RECORDER: STOP      |                                |                    |
| TEST ON EXIT        |                                |                    |
| F 1                 | F 2                            | F 3                |
| F 4                 | F 5                            | F 6                |
| F 7                 |                                |                    |

\*: Mode setting keys for SERVICE MENU.

| Key           | Mode        |
|---------------|-------------|
| [SHUTTLE]:    | STILL       |
| [PREVIOUS]:   | SHUTTLE-16  |
| [NEXT]:       | SHUTTLE+16  |
| [PCM SEARCH]: | SHUTTLE-1   |
| [LOCATE]:     | SHUTTLE+1   |
| [1]:          | SHUTTLE-8   |
| [2]:          | SHUTTLE+8   |
| [4]:          | SHUTTLE-2   |
| [5]:          | SHUTTLE+2   |
| [7]:          | SHUTTLE-0.2 |
| [8]:          | SHUTTLE+0.2 |

- (5) Using the **[↑]** and **[↓]** keys, select the desired adjustments according to Table A (select with the cursor "▷"), and perform "2-2-2. Adjustments and Checks in the Service Menu".

### Exiting the Service Menu

(Returning to normal operations)

After the adjustments, carry out the following to return to the normal operation modes from the service menu.

- (1) Set the BIT switches (S1) of the SV-147 board as follows.  
S1-1, -2, -3, -4; All off
- (2) Turn off the power switch of the unit.
- (3) Turn on the power switch of the unit.

**Table A: List of Adjustments**

When the mechanical deck assembly and its parts (parts to be replaced periodically) have been replaced, the adjustments with the ○ must be performed.

| <div>Adjustments<br/>(Service Mode)</div> <div>Parts Replaced</div> | Mechanical<br>Deck<br>Assembly | Drum<br>Assembly | Cassette<br>Compartment<br>Assembly | Drive Motor<br>Assembly | DC Motor<br>Capstan | Reel Motor | Pinch Roller<br>Assembly | Rotary<br>Encoder | HC Roller | Others                 |                       |
|---|--------------------------------|------------------|-------------------------------------|-------------------------|---------------------|------------|--------------------------|-------------------|-----------|------------------------|-----------------------|
|   |                                |                  |                                     |                         |                     |            |                          |                   |           | SV-147<br>ASSY<br>(RP) | RF-53<br>ASSY<br>(RP) |
| 1. SERVO DATA PRESET  |                                |                  |                                     |                         |                     |            |                          |                   |           |                        |                       |
| 2. PLUNGER CHECK  |                                |                  |                                     |                         |                     | ○          |                          |                   |           |                        |                       |
| 3. MECHANICAL DEVICE TEST   |                                | ○                | ○                                   | ○                       | ○                   | ○          | ○                        | ○                 | ○         | ○                      |                       |
| 4. RECOGNITION SWITCH CHECK   |                                |                  |                                     |                         |                     |            | ○                        | ○                 |           |                        |                       |
| 5. END SENSOR LEVEL CHECK<br>(HIGH)                                 |                                |                  | ○                                   |                         |                     |            |                          |                   |           | ○                      |                       |
| 6. END SENSOR LEVEL CHECK<br>(LOW)                                  |                                |                  | ○                                   |                         |                     |            |                          |                   |           | ○                      |                       |
| 7. DEW SENSOR CHECK   |                                |                  |                                     |                         |                     |            |                          |                   |           |                        |                       |
| 8. REEL TORQUE CHECK  |                                |                  |                                     |                         |                     | ○          |                          |                   |           |                        |                       |
| 9. FWD/REV TORQUE ADJUSTMENT  |                                |                  |                                     |                         |                     | ○          |                          |                   |           | ○                      |                       |
| 10. DRUM/CAPSTAN SPEED & WOW<br>CHECK                               |                                | ○                |                                     |                         |                     |            |                          |                   |           |                        |                       |
| 11. TAPE PATH ADJUSTMENT  |                                | ○                |                                     |                         | ○                   | ○          | ○                        |                   |           |                        |                       |
| 12. SWP POSITION ADJUSTMENT   |                                | ○                |                                     |                         |                     |            |                          |                   |           | ○                      |                       |
| 13. PATH & FF/REW TIME CHECK  |                                | ○                |                                     |                         | ○                   | ○          | ○                        |                   |           |                        |                       |
| 14. PB ERROR RATE CHECK   | ○                              | ○                |                                     |                         | ○                   | ○          | ○                        |                   |           | ○                      | ○                     |
| 15. REC CURRENT ADJUSTMENT<br>(LEADING)                             |                                | ○                |                                     |                         |                     |            |                          |                   |           | ○                      | ○                     |
| 16. REC CURRENT ADJUSTMENT<br>(TRAILING)                            |                                | ○                |                                     |                         |                     |            |                          |                   |           | ○                      | ○                     |
| 17. REC/PB ERROR RATE CHECK   | ○                              | ○                |                                     |                         |                     |            |                          |                   |           | ○                      | ○                     |
| 18. SERVO DATA SAVE   |                                | ○                |                                     |                         |                     | ○          |                          |                   |           | ○                      | ○                     |
| 19. SERVO DATA DISPLAY  |                                |                  |                                     |                         |                     |            |                          |                   |           |                        |                       |
| 2-2-3. Check when SV-147 board has<br>been replaced                 |                                |                  |                                     |                         |                     |            |                          |                   |           | ○                      |                       |

## 2-2-1. Preparations

### Equipment

| Name                        | Specification                  | Equipment                      |
|-----------------------------|--------------------------------|--------------------------------|
| Oscilloscope                | • 4CH INPUT<br>• DC to 150 MHz | TEKTRONIX 2445A or equivalent  |
| Digital multimeter (Tester) | —                              | ADVANTEST R6341A or equivalent |

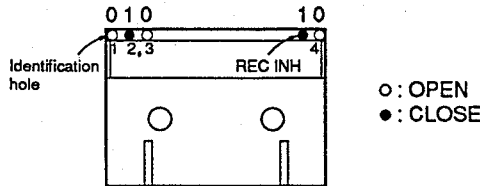
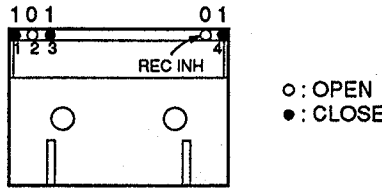
### Tools

| Name                                    | Parts No.    | Remarks   |
|---|--------------|---|
| Adjusting Screwdriver                   | J-6225-100-A | For fine tape path adjustments                    |
| RF LEVEL CHECKER PD-817                 | J-6228-170-A | For adjustments of recording and playback systems |
| I/F box PF-534 for the RF LEVEL CHECKER | J-6405-340-A | For PCM-E7700                                     |

### Test Tapes and Torque Cassettes

| Name                    | Parts No.    | Remarks                                      |
|-------------------------|--------------|--|
| Test tape TY-711DX      | 8-909-825-00 | For playback level check                     |
| Test tape TY-7251       | 8-909-813-00 | For tracking adjustments                     |
| Test tape TY-30BX       | 8-892-332-38 | For recording level adjustments (Blank tape) |
| Test tape TY-7212       | 8-960-081-01 | For error rate check                         |
| Torque cassette TW-7131 | 8-909-708-71 | For FWD/REV torque adjustment                |
| Torque cassette TW-7231 | 8-909-708-72 | For FF/REW torque check                      |

Use the following test tapes which are available on the market according to the table.

| Name                       | Method of Use   |
|----------------------------|---|
| Blank cassette             | No tape (remodel available cassette tapes)  |
| Test tape (01010)          | <p>Cassette tapes whose identification hole is as shown below (Remodel available DAT tapes)</p>  <p>○ : OPEN<br/>● : CLOSE</p>                  |
| Test tape (10101)          | <p>Cassette tapes whose identification hole is as shown below (Remodel the DAT tape available on the market)</p>  <p>○ : OPEN<br/>● : CLOSE</p> |
| Test tape (end sensor LOW) | Any 120 min. tape on the market (Use from around the middle of the tape)  |
| Test tape (TOP)            | Any 120 min. tape on the market (Use from around the top of the tape)   |
| Test tape (END)            | Any 120 min. tape on the market (Use from around the end of the tape)   |
| Test tape (FF/REW TIME)    | Any 30 min. tape on the market (Use after recording the whole tape)   |

## 1. SERVO DATA PRESET

**Note:** If servo data preset has been performed by mistake, turn off the power switch of the unit and then turn it on again.

**Test Tape:** Not required

| Procedure   | Checks   |
|---|--|
| <p>(1) Using the <b>[↑]</b> and <b>[↓]</b> keys,<br/>select "1. SERVO DATA PRESET".</p> <p>(2) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(3) MESSAGE: PRESETTING IS<br/>COMPLETED! will be displayed on the EL<br/>display.</p> <p>(4) Press <b>[F1]</b> (TEST OFF) key.<br/>(Presetting ends)</p> <p><b>Note:</b> Every time the <b>[F1]</b> key is pressed<br/>once, the unit sets to the TEST OFF<br/>(on the display) from the TEST ON<br/>state.</p> | <p>EL Display</p> <p><b>Note:</b> The preset value displayed on the display may differ according to the version of the ROM used.</p> <div> <div> RECORDER ADJUSTMENT 1. SERVO DATA PRESET </div> <div> SWP POSITION = 117 (75H) EQ-L-X1 = 64 (40H) REC-L-PCMA1 = 217 (D9H)<br/> EQ-H-X1 = 66 (42H) REC-L-PCMB1 = 217 (D9H)<br/> FWD TORQ T = 14 (0EH) EQ-Q-X1 = 59 (3BH) REC-L-ATFA1 = 16 (10H)<br/> FWD TORQ S = 128 (80H) EQ-P-X1 = 44 (2CH) REC-L-ATFB1 = 16 (10H)<br/> REV TORQ T = 65 (41H)<br/> REV TORQ S = 138 (84H) EQ-L-X2 = 21 (15H) REC-T-PCMA1 = 217 (D9H)<br/> OFFSET TORQ = 56 (38H) EQ-H-X2 = 44 (2CH) REC-T-PCMB1 = 217 (D9H)<br/> EQ-Q-X2 = 37 (25H) REC-T-ATFA1 = 16 (10H)<br/> EQ-P-X2 = 21 (15H) REC-T-ATFB1 = 16 (10H)<br/> END T HIGH = 128 (80H)<br/> END S HIGH = 128 (80H)<br/> END T LOW = 00 (00H)<br/> END S LOW = 00 (00H) </div> </div> <p>MESSAGE</p> <div>PRESETTING IS COMPLETED!</div> <p>RECORDER: NO TAPE</p> <p>-----</p> <p>TEST OFF</p> <div> F 1 F 2 F 3 F 4 F 5 F 6 F 7 </div> |

## 2. PLUNGER CHECK

**Equipment and Tools:** Not required

**Test Tape:** Not required

| Procedure  | Checks  |                     |                  |              |      |                 |      |                   |  |       |  |          |  |
|--|---|---------------------|------------------|--------------|------|-----------------|------|-------------------|--|-------|--|----------|--|
| <p>(1) Using the <b>[F1]</b> and <b>[F2]</b> keys, select "2. PLUNGER CHECK".</p> <p>(2) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(3) Check the sound produced when the plunger starts operating.<br/>Check the results displayed on the EL display.</p> <p>(4) Press <b>[F1]</b> (TEST OFF) key.</p> | <p>EL Display</p> <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">RECORDER ADJUSTMENT</td><td style="width: 50%;">2. PLUNGER CHECK</td></tr> <tr> <td>PLUNGER KICK</td><td>PASS</td></tr> <tr> <td>PLUNGER RELEASE</td><td>PASS</td></tr> <tr> <td colspan="2">RECORDER: NO TAPE</td></tr> <tr> <td colspan="2">-----</td></tr> <tr> <td colspan="2">TEST OFF</td></tr> </table> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <p>Results Displayed: PASS...Normal<br/>FAULT...Failure</p> | RECORDER ADJUSTMENT | 2. PLUNGER CHECK | PLUNGER KICK | PASS | PLUNGER RELEASE | PASS | RECORDER: NO TAPE |  | ----- |  | TEST OFF |  |
| RECORDER ADJUSTMENT  | 2. PLUNGER CHECK  |                     |                  |              |      |                 |      |                   |  |       |  |          |  |
| PLUNGER KICK   | PASS  |                     |                  |              |      |                 |      |                   |  |       |  |          |  |
| PLUNGER RELEASE  | PASS  |                     |                  |              |      |                 |      |                   |  |       |  |          |  |
| RECORDER: NO TAPE  |   |                     |                  |              |      |                 |      |                   |  |       |  |          |  |
| -----  |   |                     |                  |              |      |                 |      |                   |  |       |  |          |  |
| TEST OFF   |   |                     |                  |              |      |                 |      |                   |  |       |  |          |  |

## 3. MECHANICAL DEVICE TEST

**Equipment and Tools:** Not required

**Test Tape:** Blank cassette (Refer to "2-2-1. Preparations".)

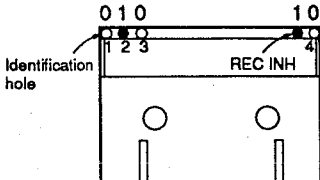
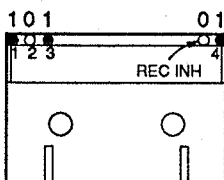
| Procedure   | Checks  |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |
|---|---|---------------------|---------------------------|--------------------|------|----------------------|------|----------------|------|------------|------|---------------|------|-------------------|------|-------------------|------|-------------------|--|-------|--|----------|--|
| <p>(1) Using the <b>[F1]</b> and <b>[F2]</b> keys, select "3. MECHANICAL DEVICE TEST".</p> <p>(2) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(3) Insert the blank cassette.<br/>The mechanical device test will be carried out and the results will be displayed on the display. After the display, the blank cassette will automatically be ejected.</p> <p>(4) After checking the display, press the <b>[F1]</b> (TEST OFF) key.</p> | <p>EL Display</p> <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">RECORDER ADJUSTMENT</td><td style="width: 50%;">3. MECHANICAL DEVICE TEST</td></tr> <tr> <td>CASSETTE UP SWITCH</td><td>PASS</td></tr> <tr> <td>CASSETTE DOWN SWITCH</td><td>PASS</td></tr> <tr> <td>ROTARY ENCODER</td><td>PASS</td></tr> <tr> <td>DRUM MOTOR</td><td>PASS</td></tr> <tr> <td>CAPSTAN MOTOR</td><td>PASS</td></tr> <tr> <td>SUPPLY REEL MOTOR</td><td>PASS</td></tr> <tr> <td>TAKEUP REEL MOTOR</td><td>PASS</td></tr> <tr> <td colspan="2">RECORDER: NO TAPE</td></tr> <tr> <td colspan="2">-----</td></tr> <tr> <td colspan="2">TEST OFF</td></tr> </table> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <p>Results Displayed: PASS...Normal<br/>FAULT...Failure</p> <p><b>Note:</b> When the mechanical device test mode has been set, until it has been executed, the next mode cannot be set.</p> | RECORDER ADJUSTMENT | 3. MECHANICAL DEVICE TEST | CASSETTE UP SWITCH | PASS | CASSETTE DOWN SWITCH | PASS | ROTARY ENCODER | PASS | DRUM MOTOR | PASS | CAPSTAN MOTOR | PASS | SUPPLY REEL MOTOR | PASS | TAKEUP REEL MOTOR | PASS | RECORDER: NO TAPE |  | ----- |  | TEST OFF |  |
| RECORDER ADJUSTMENT   | 3. MECHANICAL DEVICE TEST   |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |
| CASSETTE UP SWITCH  | PASS  |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |
| CASSETTE DOWN SWITCH  | PASS  |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |
| ROTARY ENCODER  | PASS  |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |
| DRUM MOTOR  | PASS  |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |
| CAPSTAN MOTOR   | PASS  |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |
| SUPPLY REEL MOTOR   | PASS  |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |
| TAKEUP REEL MOTOR   | PASS  |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |
| RECORDER: NO TAPE   |   |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |
| -----   |   |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |
| TEST OFF  |   |                     |                           |                    |      |                      |      |                |      |            |      |               |      |                   |      |                   |      |                   |  |       |  |          |  |

#### 4. RECOGNITION SWITCH CHECK

**Equipment and Tools:** Not required

**Test Tape:** Test tape (01010) (Refer to "2-2-1. Preparations".)

Test tape (10101) (Refer to "2-2-1. Preparations".)

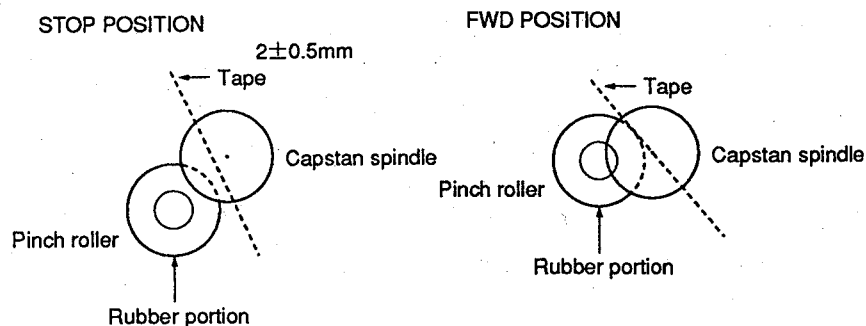
| Procedure  | Checks/Specifications  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
|--|--|---------------------|-----------------------------|-------------------|-----------|---------------|-----------|---------------|-----------|-------------|-----------|--------------------|-----------|
| <p>(1) Using the <b>[F1]</b> and <b>[F2]</b> keys, select "4. RECOGNITION SWITCH CHECK".</p> <p>(2) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(3) Insert the test tape (01010). Check that the results on the EL display and the identification hole of the test tape (01010) match.</p> | <p>EL display</p> <table border="1"> <thead> <tr> <th>RECORDER ADJUSTMENT</th><th>4. RECOGNITION SWITCH CHECK</th></tr> </thead> <tbody> <tr> <td>HOLE-1 (RESERVED)</td><td>OPEN (0)</td></tr> <tr> <td>HOLE-2 (THIN)</td><td>CLOSE (1)</td></tr> <tr> <td>HOLE-3 (WIDE)</td><td>OPEN (0)</td></tr> <tr> <td>HOLE-RECINH</td><td>CLOSE (1)</td></tr> <tr> <td>HOLE-4 (SOFT TAPE)</td><td>OPEN (0)</td></tr> </tbody> </table> <p>RECORDER: SBOFF</p> <p>-----</p> <p>TEST OFF</p> <p>F 1      F 2      F 3      F 4      F 5      F 6      F 7</p>  <p>○: OPEN<br/>●: CLOSE</p>   | RECORDER ADJUSTMENT | 4. RECOGNITION SWITCH CHECK | HOLE-1 (RESERVED) | OPEN (0)  | HOLE-2 (THIN) | CLOSE (1) | HOLE-3 (WIDE) | OPEN (0)  | HOLE-RECINH | CLOSE (1) | HOLE-4 (SOFT TAPE) | OPEN (0)  |
| RECORDER ADJUSTMENT  | 4. RECOGNITION SWITCH CHECK  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-1 (RESERVED)  | OPEN (0)   |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-2 (THIN)  | CLOSE (1)  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-3 (WIDE)  | OPEN (0)   |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-RECINH  | CLOSE (1)  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-4 (SOFT TAPE)   | OPEN (0)   |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| <p>(4) Press the <b>[EJECT]</b> key and eject the test tape (01010).</p> <p>(5) Insert the test tape (10101). Check that the results on the EL display and the identification hole of the test tape (10101) match.</p>   | <p>EL display</p> <table border="1"> <thead> <tr> <th>RECORDER ADJUSTMENT</th><th>4. RECOGNITION SWITCH CHECK</th></tr> </thead> <tbody> <tr> <td>HOLE-1 (RESERVED)</td><td>CLOSE (1)</td></tr> <tr> <td>HOLE-2 (THIN)</td><td>OPEN (0)</td></tr> <tr> <td>HOLE-3 (WIDE)</td><td>CLOSE (1)</td></tr> <tr> <td>HOLE-RECINH</td><td>OPEN (0)</td></tr> <tr> <td>HOLE-4 (SOFT TAPE)</td><td>CLOSE (1)</td></tr> </tbody> </table> <p>RECORDER: SBOFF</p> <p>-----</p> <p>TEST OFF</p> <p>F 1      F 2      F 3      F 4      F 5      F 6      F 7</p>  <p>○: OPEN<br/>●: CLOSE</p> | RECORDER ADJUSTMENT | 4. RECOGNITION SWITCH CHECK | HOLE-1 (RESERVED) | CLOSE (1) | HOLE-2 (THIN) | OPEN (0)  | HOLE-3 (WIDE) | CLOSE (1) | HOLE-RECINH | OPEN (0)  | HOLE-4 (SOFT TAPE) | CLOSE (1) |
| RECORDER ADJUSTMENT  | 4. RECOGNITION SWITCH CHECK  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-1 (RESERVED)  | CLOSE (1)  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-2 (THIN)  | OPEN (0)   |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-3 (WIDE)  | CLOSE (1)  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-RECINH  | OPEN (0)   |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| HOLE-4 (SOFT TAPE)   | CLOSE (1)  |                     |                             |                   |           |               |           |               |           |             |           |                    |           |
| <p>(6) Press the <b>[PLAY]</b> key.</p>  | <p><b>Check:</b> ① Check that the cleaning roller touches the drum and moves away immediately.</p> <p>② Check that the pinch roller presses against the capstan shaft and rotates.</p>   |                     |                             |                   |           |               |           |               |           |             |           |                    |           |



(7) Press the **STOP** key.

**Check:** Check where the pinch roller stops.

**Specification:** Gap between capstan shaft and pinch roller = 1.5 mm to 2.5 mm



Check that the distance between the capstan spindle and the pinch roller is in the range of 1.5 to 2.5mm. (In this position, the rubber portion of the pinch roller is hidden under the capstan spindle cover.)

(8) Press the **F1** (TEST OFF) key.

The test tape (10101) will be ejected automatically.

## 5. END SENSOR LEVEL CHECK (HIGH)

**Equipment and Tools:** Not required

**Test Tape:** Blank cassette (Refer to "2-2-1. Preparations")

| Procedure   | Checks/Specifications  |
|---|--|
| <p>(1) Using the <b>F1</b> and <b>F2</b> keys, select "5. END SENSOR LEVEL CHECK (HIGH)".</p> <p>(2) Press the <b>F1</b> (TEST ON) key.</p> <p>(3) Insert the blank cassette.<br/>The sensor level will be displayed on the EL display. Check that the sensor level satisfies the specification.</p> <p>(4) Press the <b>F1</b> (TEST OFF) key.<br/>The cassette will be ejected automatically.</p> | <p>EL display</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>RECORDER ADJUSTMENT      5. END SENSOR LEVEL CHECK(HIGH)</p> <p>T-END SENSOR LEVEL = X.XX V (XXH)</p> <p>S-END SENSOR LEVEL = X.XX V (XXH)</p> <p>RECORDER: SBOFF</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <p><b>Specification:</b> Sensor level: 1.0 V and higher</p> |

## 6. END SENSOR LEVEL CHECK (LOW)

**Equipment and Tools:** Not required

**Test Tape:** Test tape (end sensor (LOW)) (Refer to "2-2-1. Preparations".)

| Procedure  | Checks/Specifications  |
|--|--|
| <p>(1) Using the <b>[↑]</b> and <b>[↓]</b> keys, select "6. END SENSOR LEVEL CHECK (LOW)".</p> <p>(2) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(3) Insert the test tape (end sensor (LOW)).</p> <p><b>Note:</b> Use the test tape (end sensor (LOW)) around the center of the take up side.<br/>The sensor level will be displayed on the EL display.<br/>Check that the sensor level satisfies the specification.</p> <p>(4) Press <b>[F1]</b> (TEST OFF) key.<br/>The tape will be ejected automatically.</p> | <p>EL Display</p> <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>RECORDER ADJUSTMENT      6. END SENSOR LEVEL CHECK (LOW)</p> <p>T-END SENSOR LEVEL = X.XX V (XXH)<br/>S-END SENSOR LEVEL = X.XX V (XXH)</p> <p>RECORDER: SBOFF</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <p><b>Specification:</b> Sensor level = Less than or equal 0.2V</p> |

## 7. DEW SENSOR CHECK

**Equipment and Tools:** Not required

**Test Tape:** Not required

| Procedure  | Checks/Specifications  |
|--|--|
| <p>(1) Using the <b>[↑]</b> and <b>[↓]</b> keys, select "7. DEW SENSOR CHECK".</p> <p>(2) Press the <b>[F1]</b> (TEST ON) key.<br/>The sensor level will be displayed on the EL display.<br/>Check that the sensor level satisfies the specification.</p> <p>(3) Press the <b>[F1]</b> (TEST OFF) key.</p> | <p>EL Display</p> <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>RECORDER ADJUSTMENT      7. DEW SENSOR LEVEL CHECK</p> <p>DEW SENSOR LEVEL = X.XX V (XXH)</p> <p>RECORDER: NO TAPE</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> <p><b>Specification:</b> Sensor level = 0.1 V &lt;X.XX V&lt;0.4 V<br/>Displayed level</p> |

## 8. REEL TORQUE CHECK

**Equipment and Tools:** Not required

**Test Tape:** Torque cassette TW-7231

| Procedure  | Checks/Specifications   |
|--|---|
| <p>(1) Using the <b>[1]</b> and <b>[2]</b> keys, select "8. REEL TORQUE CHECK".</p> <p>(2) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(3) Insert the torque cassette (TW-7231).</p>                           | <p>EL Display (TEST ON display)</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>RECORDER ADJUSTMENT      8. REEL TORQUE CHECK</p> <p>CHECK      OFF</p> <p>▷ REEL TORQUE CHECK      FF L(1.5V)</p> <p>CHECK      OFF</p> <p>REEL TORQUE CHECK      REW L(1.5V)</p> <p>CHECK      OFF</p> <p>REEL TORQUE CHECK      FF H(4.3V)</p> <p>CHECK      OFF</p> <p>REEL TORQUE CHECK      FF L(4.3V)</p> <p>CHECK      OFF</p> <p>OFFSET      TORQUE</p> <p>RECORDER: SBOFF</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> |
| <p>(4) Using the <b>[1]</b> and <b>[2]</b> keys, select "REEL TORQUE CHECK FF L". Check that the torque value of the torque cassette (T-side reel) satisfies the specification (shown on the right side).</p>  | <p><b>Note:</b> T = TAKE UP reel side, S = SUPPLY reel side</p> <p><b>Specification:</b> T-REEL torque = 0.0004 to 0.001 N-m (4 to 10 g-cm)</p>   |
| <p>(5) Using the <b>[1]</b> and <b>[2]</b> keys, select "REEL TORQUE CHECK REW L". Check that the torque value of the torque cassette (S-side reel) satisfies the specification (shown on the right side).</p> | <p><b>Specification:</b> S-REEL torque = 0.0004 to 0.001 N-m (4 to 10 g-cm)</p>   |
| <p>(6) Using the <b>[1]</b> and <b>[2]</b> keys, select "REEL TORQUE CHECK FF H". Check that the torque value of the torque cassette (T-side reel) satisfies the specification (shown on the right side).</p>  | <p><b>Specification:</b> T-REEL torque = 0.0026 N-m and higher (26 g-cm and higher)</p>   |
| <p>(7) Using the <b>[1]</b> and <b>[2]</b> keys, select "REEL TORQUE CHECK REW H". Check that the torque value of the torque cassette (S-side reel) satisfies the specification (shown on the right side).</p> | <p><b>Specification:</b> S-REEL torque = 0.0026 N-m and higher (26 g-cm and higher)</p>   |
| <p>(8) Press the <b>[F1]</b> (TEST OFF) key.</p> <p>The torque cassette will be ejected automatically.</p>   |   |

**Equipment and Tools:** Not required  
**Test Tape:** Torque cassette TW-7131

PCM-E7700

## 10. DRUM/CAPSTAN SPEED & WOW CHECK (10. Correct Rotation Check)

**Equipment and Tools:** Not required

**Test Tape:** Blank cassette (Refer to "2-2-1. Preparations".)

| Procedure  | Checks/Specifications   |
|--|---|
| (1) Using the <b>[F1]</b> and <b>[F2]</b> keys, select "10. DRUM/CAPSTAN SPEED & WOW CHECK".<br>(2) Press the <b>[F1]</b> (TEST ON) key.<br>(3) Insert the blank cassette. | EL Display<br><div style="border: 1px solid black; padding: 10px; margin: 10px 0;">             RECORDER ADJUSTMENT      10. DRUM/CAPSTAN SPEED &amp; WOW CHECK<br/><br/>             DRUM SPEED =2000 rpm<br/><br/>             RECORDER: PLAY<br/>             -----<br/>             TEST OFF                      SPEED           </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <span>F 1</span><span>F 2</span><span>F 3</span><span>F 4</span><span>F 5</span><span>F 6</span><span>F 7</span> </div> |
| (4) Press the <b>[PLAY]</b> key.   | <b>Check:</b> While rotating the drum in the clockwise direction slowly, check that the drum rotates correctly. (When the drum is stopped with your finger, it must rotate when you release your finger regardless of its position.)  |

## 11. TAPE PATH ADJUSTMENT

### Equipment and Tools:

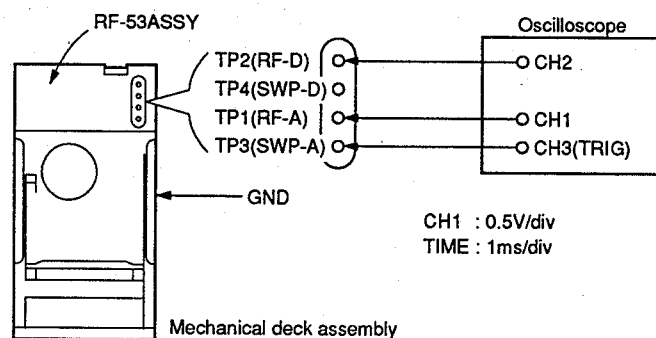
Oscilloscope

Adjusting screwdriver (J-6225-100-A)

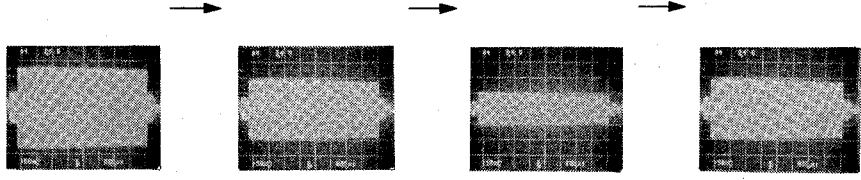
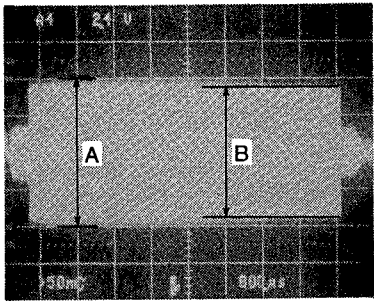
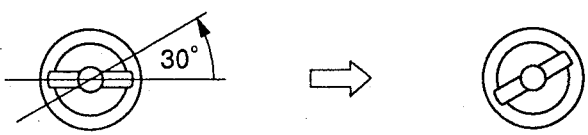
### Test Tape:

Test tape TY-7251

### Connection



| Procedure   | Checks/Specifications   |
|---|---|
| <p>(1) Connect the oscilloscope to the following points of the RF-53 assembly.</p> <p><u>Oscilloscope</u>   <u>RF-53 assembly</u></p> <p>CH1 → TP1 (RF-A)</p> <p>CH2 → TP2 (RF-D)</p> <p>(Only the recorder)</p> <p>CH3 → TP3 (SWP-A, TRIG)</p> <p>Connect the GND to the metal plate, etc. of the mechanism deck.</p> <p>(2) Using the <b>[↑]</b> and <b>[↓]</b> keys, select "11. TAPE PATH ADJUSTMENT".</p> <p>(3) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(4) Insert the test tape (TY-7251).</p> | <p>EL Display</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>RECORDER ADJUSTMENT      11. TAPE PATH ADJUSTMENT</p> <p>ATF OFFSET = 0%</p> <p>RECORDER: PLAY</p> <hr/> <p>TEST OFF      0%      50%      100%</p> <p>F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> </div> <p>(5) Press the <b>[PLAY]</b> key.</p> <p><b>Specification:</b> Adjust the RF waveform (TP1) so that it becomes square.</p> <p style="text-align: center;">RF waveform (TP1)</p> <p><b>Adjustment:</b> Adjust the height of the S1 and T1 guides finely with the adjusting screwdriver (J-6225-100-A).</p> |

|  |  |
|--|--|
| <p>(6) Press the <b>[F5]</b> (100%) key.<br/>(ATF OFF)</p>   | <p><b>Check:</b> Check that the RF waveform (TP1) changes parallel.</p>  <p><b>Adjustment:</b> Adjust the height of the S1 and T1 guides so that the RF waveform changes parallel.</p>   |
| <p>(7) Press the <b>[F4]</b> (50%) key.<br/>(ATF OFFSET)</p>   | <p><b>Check:</b> Check that the RF waveform (TP1) satisfies the following specification.</p> <p><b>Specification:</b> The RF waveform becomes rectangular at its 50% height.<br/>Distortion including fluctuations should be within 10% against the flat part.</p>  <p>RF waveform (TP1)</p> <p><b>Specification:</b> <math>\frac{B}{A} \times 100(\%) \geq 80\%</math></p> |
| <p>(8) Press the <b>[F3]</b> (0%) key. (ATF ON)</p> <p>(9) Press the SHUTTLE (–16)<br/>( <b>[PREVIOUS]</b> key ).</p> <p>(10) Check the rising time of the RF waveform when press the <b>[PLAY]</b> key.</p>     | <p><b>Check (specification):</b> The RF waveform (TP1) becomes stable within two seconds.</p>  |
| <p>(11) Press the <b>[EJECT]</b> key and eject the test tape.</p> <p>(12) Insert the test tape (TY-7251), press the <b>[PLAY]</b> (PLAY mode) key, and check the rising time of the RF waveform (PLAY mode).</p> | <p><b>Check (Specification):</b> The RF waveform becomes stable within 2 seconds.</p>  |
| <p>(13) Press the <b>[F1]</b> (TEST OFF) key.<br/>The test tape (TY-7251) will be ejected automatically.</p>   |  |
| <p>(14) Adjust the height of S1 guide for the PLAYER mechanical deck.</p>  | <p><b>Adjustment:</b> Rotate the S1 guide 30° in the counterclockwise direction using the adjustment driver (J-6225-100-A).</p>  <p>S1 guide</p>   |





### 13. PATH & FF/REW TIME CHECK

#### Equipment and Tools:

Oscilloscope

#### Test Tape:

Test tape (TOP) (Refer to "2-2-1. Preparations".)

Test tape (END) (Refer to "2-2-1. Preparations".)

Test tape (FF/REW TIME) (Refer to "2-2-1. Preparations".)

#### Connection

Same as "11. TAPE PATH ADJUSTMENT".

| Procedure  | Adjustments/Checks/Specifications  |
|--|--|
| <p>(1) Connect the oscilloscope to the following points of the RF-53 assembly.</p> <p>Oscilloscope RF-53 ASSY</p> <p>CH1 → TP1 (RF-A)</p> <p>CH3 → TP3 (SWP-A, TRIG)</p> <p>(2) Using the <b>[↑]</b> and <b>[↓]</b> keys, select "13. FF/REW TIME CHECK".</p> <p>(3) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(4) Insert the test tape (TOP).</p> | <p>EL Display</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p>RECORDER ADJUSTMENT      13. PATH &amp; FF/REW TIME CHECK</p> <p>FF TIME = 0 SEC</p> <p>REW TIME = 0 SEC</p> <p>RECORDER: NO TAPE</p> <p>-----</p> <p>TEST OFF</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> |
| <p>(5) Repeat pressing SHUTTLE (+1) (<b>[LOCATE]</b> key) and SHUTTLE (-1) (<b>[PGM SEARCH]</b> key) alternately. Check that the tape running satisfies the specification.</p>   | <p><b>Specification:</b> The tape should not be curled and not come off the guides before and after the pinch roller.</p>  |
| <p>(6) Repeat pressing SHUTTLE (+16) (<b>[NEXT]</b> key) and SHUTTLE (-16) (<b>[PREVIOUS]</b> key) alternately. Check that the tape running satisfies the specification.</p>   | <p><b>Specification:</b> The tape should not be curled and not come off the guides before and after the pinch roller.</p>  |
| <p>(7) Press the EJECT key and eject the test tape (TOP).</p> <p>(8) Insert the test tape (END).</p> <p>(9) Repeat pressing SHUTTLE (+1) (<b>[LOCATE]</b> key) and SHUTTLE (-1) (<b>[PGM SEARCH]</b> key) alternately. Check that the tape running satisfies the specification.</p>  | <p><b>Specification:</b> The tape should not be curled and not come off the guides before and after the pinch roller.</p>  |

|  |  |
|--|--|
| <p>(10) Repeat pressing SHUTTLE (+16) ( <b>NEXT</b> key) and SHUTTLE (-16) ( <b>PREVIOUS</b> key) alternately.</p> <p>Check that the tape running satisfies the specification.</p>   | <p><b>Specification:</b> The tape should not be curled and not come off the guides before and after the pinch roller.</p>  |
| <p>(11) Press the <b>EJECT</b> key and eject the test tape (END).</p> <p>(12) Insert the test tape (FF/REW TIME).</p> <p>(13) Fast forward and rewind the tape with the <b>REW</b> key or <b>FF</b> key and check that the tape rewind time satisfies the specification.</p> | <p><b>Specification:</b> Take up time of tape fast forwarded = Less than 20 seconds.</p> <p>Take up time of tape rewind = Less than 20 seconds.</p> <p>Check with the RF waveform of the oscilloscope that the tape contacts the head correctly during FF and REW.</p> |
| <p>(14) Press the <b>F1</b> (TEST OFF) key.</p> <p>The test tape (FF/REW TIME) will be ejected automatically.</p>  |  |

#### 14. PB ERROR RATE CHECK

**Equipment and Tools:** Oscilloscope

**Test Tape:** Test tape TY-7212

- Note:** 1. Be sure to mount the top plate when measuring the error rate.  
2. Before performing checks, use the cleaning tape and clean for ten seconds.

| Procedure   | Adjustments/Checks/Specifications   |
|---|---|
| <p>(1) Using the <b>F1</b> and <b>F2</b> keys, select "14. PB ERROR RATE CHECK".</p> <p>(2) Press the <b>F1</b> (TEST ON) key.</p> <p>(3) Insert the test tape (TY-7212).</p> | <p>EL Display</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>RECORDER ADJUSTMENT      14. PB ERROR RATE CHECK</p> <p>EQ-X1-L = 64 (40H)      PB SPEED      X1</p> <p>EQ-X1-H = 66 (42H)      PB HEAD      LEADING</p> <p>EQ-X1-Q = 59 (3BH)      ERROR RATE      A-CH X.XE-X</p> <p>EQ-X1-P = 44 (2CH)           B-CH X.XE-X</p> <p>EQ-X2-L = 21 (15H)</p> <p>EQ-X2-H = 44 (2CH)</p> <p>EQ-X2-Q = 37 (25H)</p> <p>EQ-X2-P = 21 (15H)</p> <p>RECORDER: PLAY      TIME CODE: 00:10:58:40</p> <p>TEST OFF      HEAD      ↑      ↓</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> |
| <p>(4) Press the <b>PLAY</b> key and check that the specification is satisfied.</p>   | <p><b>Specification:</b> Playback error rate A-CH = Less than or equal <math>5 \times 10</math></p> <p>(Display: Less than or equal 5E-3)</p> <p>Playback error rate B-CH = Less than or equal <math>5 \times 10</math></p> <p>(Display: Less than or equal 5E-3)</p>   |

|   |  |
|---|--|
| <p>(5) Press the <b>[STOP]</b> key.</p> <p>(6) Using the <b>[↑]</b> and <b>[↓]</b> keys, select "EQ-X2-L". ( Normal speed × 2 mode)</p> <p>(7) Press the <b>[PLAY]</b> key and check that the specification is satisfied.</p>   | <p><b>Specification:</b> Playback error rate A-CH = Less than or equal <math>5 \times 10</math><br/>(Display: Less than or equal 5E-3)<br/>Playback error rate B-CH = Less than or equal <math>5 \times 10</math><br/>(Display: Less than or equal 5E-3)</p>   |
| <p>(8) Press the <b>[STOP]</b> key.</p> <p><b>Note:</b> Press the <b>[F1]</b> (TEST OFF) key for the PLAYER deck.<br/>The test tape will be ejected automatically. (End of check for the PLAYER deck)</p>   |  |
| <p>The following check is for the RECORDER deck only.</p> <p>(9) Press the <b>[F4]</b> (HEAD) key and check that "PB HEAD TRAILING" is displayed.</p> <p>(10) Press the <b>[PLAY]</b> key and check that the specification is satisfied.</p>  | <p><b>Specification:</b> Playback error rate A-CH = Less than or equal <math>5 \times 10</math><br/>(Display: Less than or equal 5E-3)</p> <p><b>Specification:</b> Playback error rate B-CH = Less than or equal <math>5 \times 10</math><br/>(Display: Less than or equal 5E-3)</p>  |
| <p>(11) Press the <b>[STOP]</b> key.</p> <p>(12) Using the <b>[↑]</b> and <b>[↓]</b> keys, select "EQ-X1-P". (Normal speed mode)</p> <p>(13) Press the <b>[PLAY]</b> key and check that the specification is satisfied.</p>   | <p><b>Specification:</b> Playback error rate A-CH = Less than or equal <math>5 \times 10</math><br/>(Display: Less than or equal 5E-3)<br/>Playback error rate B-CH = Less than or equal <math>5 \times 10</math><br/>(Display: Less than or equal 5E-3)</p>   |
| <p>(14) Press the <b>[STOP]</b> key.</p> <p>(15) Connect the oscilloscope to the following points of the RF-53 assembly.</p> <p><b>Oscilloscope      RF-53 ASSY</b></p> <p>    &lt; For RECORDER &gt;<br/>    CH1 → TP2 (RF-D)<br/>    CH3 → TP4 (SWP-D, TRIG)<br/>    &lt; For PLAYER &gt;<br/>    CH1 → TP1 (RF-A)<br/>    CH3 → TP3 (SWP-A, TRIG)</p> <p>(16) Press the SHUTTLE (←2) (<b>[4]</b> key).</p> | <p><b>Check:</b> Check that the RF waveform (TP-2) satisfies the following specification.</p> <p><b>Specification:</b> The RF waveform rises within two seconds.</p> <div> <p style="text-align: right;"> <math>\frac{B}{A} \geq \frac{5}{10}</math><br/> <math>\frac{C}{A} \geq \frac{5}{10}</math> </p> </div> <p>Check that the waveform is stable for ten seconds.</p> |
| <p>(17) Press the <b>[REW]</b> key.</p> <p>(18) Press the SHUTTLE (←2) (<b>[4]</b> key).</p>  | <p>Check that the above specifications are satisfied.</p>  |
| <p>(19) Press the <b>[F1]</b> (TEST OFF) key.<br/>The test tape (TY-7212) will be ejected automatically.</p>  |  |

## 15. REC CURRENT ADJUSTMENT (LEADING) (RECORDER deck only)

### Equipment and Tools:

Oscilloscope  
RF level checker PD-817  
I/F box PF-534 for the RF level checker

### Test Tape:

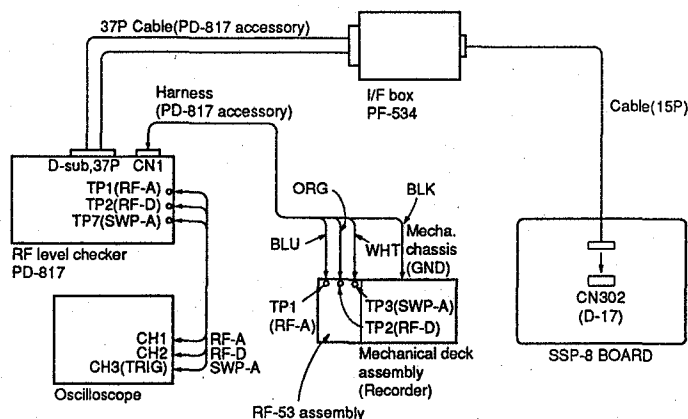
Test tape TY-7111DX  
Test tape TY-30BX

### Connection

Connect the parts with the power switch of PCM-E7700 off.

Remove the key panel assembly when connecting the RF-534 cable (15P) to CN302 on the SSP-8 board.

When performing adjustments, make sure that the cable (15P) is not caught and the key panel assembly is attached to the unit.



| Procedure  | Adjustments/Checks/Specifications   |                                     |  |                                     |  |             |       |           |  |             |       |           |  |             |       |           |  |             |       |           |  |               |  |                              |  |          |  |     |  |
|--|---|-------------------------------------|--|-------------------------------------|--|-------------|-------|-----------|--|-------------|-------|-----------|--|-------------|-------|-----------|--|-------------|-------|-----------|--|---------------|--|------------------------------|--|----------|--|-----|--|
| <p>(1) Using the <b>[F1]</b> and <b>[F2]</b> keys, select "15. REC CURRENT ADJUSTMENT (LEADING)".</p> <p>(2) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(3) Insert the test tape (TY-7111DX).</p> <p>(4) According to the calibration values table attached to the test tape, set the calibration value with the OFF SET dial of the RF level checker (PD-817).</p> <p>(5) Press the <b>[PLAY]</b> key.<br/>Check that the RF waveform (oscilloscope) is stable.</p> <p>(6) Press the <b>[CAL]</b> key of the RF level checker (PD-817).</p> <p>(7) After completing CAL, and the LED of the <b>[CAL]</b> key stops blinking and lights up, press the <b>[EJECT]</b> key and eject the test tape (TY-7111DX).</p> | <p>EL Display</p> <table><tr><th colspan="2">RECORDER ADJUSTMENT</th><th colspan="2">15. REC CURRENT ADJUSTMENT(LEADING)</th></tr><tr><td>REC CURRENT</td><td>PCM-A</td><td>XXX (XXH)</td><td></td></tr><tr><td>REC CURRENT</td><td>PCM-B</td><td>XXX (XXH)</td><td></td></tr><tr><td>REC CURRENT</td><td>ATF-A</td><td>XXX (XXH)</td><td></td></tr><tr><td>REC CURRENT</td><td>ATF-B</td><td>XXX (XXH)</td><td></td></tr><tr><td colspan="2">RECORDER: REC</td><td colspan="2">TIME CODE: 00 : 10 : 58 : 40</td></tr><tr><td colspan="2">TEST OFF</td><td colspan="2">↑ ↓</td></tr></table> <p>F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> | RECORDER ADJUSTMENT                 |  | 15. REC CURRENT ADJUSTMENT(LEADING) |  | REC CURRENT | PCM-A | XXX (XXH) |  | REC CURRENT | PCM-B | XXX (XXH) |  | REC CURRENT | ATF-A | XXX (XXH) |  | REC CURRENT | ATF-B | XXX (XXH) |  | RECORDER: REC |  | TIME CODE: 00 : 10 : 58 : 40 |  | TEST OFF |  | ↑ ↓ |  |
| RECORDER ADJUSTMENT  |   | 15. REC CURRENT ADJUSTMENT(LEADING) |  |                                     |  |             |       |           |  |             |       |           |  |             |       |           |  |             |       |           |  |               |  |                              |  |          |  |     |  |
| REC CURRENT  | PCM-A   | XXX (XXH)                           |  |                                     |  |             |       |           |  |             |       |           |  |             |       |           |  |             |       |           |  |               |  |                              |  |          |  |     |  |
| REC CURRENT  | PCM-B   | XXX (XXH)                           |  |                                     |  |             |       |           |  |             |       |           |  |             |       |           |  |             |       |           |  |               |  |                              |  |          |  |     |  |
| REC CURRENT  | ATF-A   | XXX (XXH)                           |  |                                     |  |             |       |           |  |             |       |           |  |             |       |           |  |             |       |           |  |               |  |                              |  |          |  |     |  |
| REC CURRENT  | ATF-B   | XXX (XXH)                           |  |                                     |  |             |       |           |  |             |       |           |  |             |       |           |  |             |       |           |  |               |  |                              |  |          |  |     |  |
| RECORDER: REC  |   | TIME CODE: 00 : 10 : 58 : 40        |  |                                     |  |             |       |           |  |             |       |           |  |             |       |           |  |             |       |           |  |               |  |                              |  |          |  |     |  |
| TEST OFF   |   | ↑ ↓                                 |  |                                     |  |             |       |           |  |             |       |           |  |             |       |           |  |             |       |           |  |               |  |                              |  |          |  |     |  |

(8) Insert the test tape (TY-30BX, blank area).

(9) Press the **LEADING (A/B)** key of the RF level checker

(PD-817).  
The PCM/ATF (Ach, Bch) recording current level of the leading head will be measured automatically (Self recording and playback).

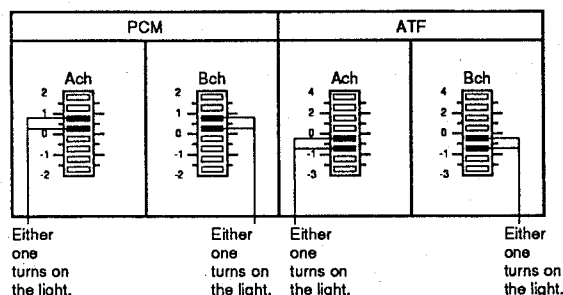
(10) After measuring, the indicator of the **LEADING** key will stop blinking and light up and the recording level will be displayed on the level meter of the RF level checker. Repeat steps (8), (9), and (10) so that the recording level satisfies the specification.

(11) Press the **F1** (TEST OFF) key.  
The test tape (TY-30BX) will be ejected automatically.

**Specification:** PCM-A and PCM-B recording level =  $0.5 \pm 0.5$  dB

ATF-A and ATF-B recording level =  $-0.5 \pm 0.5$  dB

RF Level Checker Level Meter Display



**Adjustment:** Using the **↑** and **↓** keys, select values that do not satisfy the specification, and adjust with the **F6** and **F7** keys as follows.

To raise the recording level: Press the **F6** (UP) key

To lower the recording level: Press the **F7** (DOWN) key

#### \*1: Setting of the offset dial

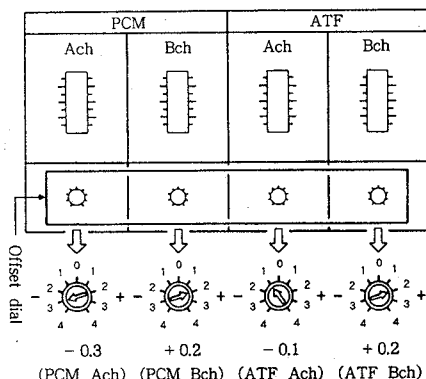
According to the table of calibration values attached to the test tape (TY-7111DX), set the calibration values of the 1.57 MHz and 130 kHz Ach/Bch with the RF level checker offset dial.

#### Setting Example

##### Display of Calibration Values

|            | 130.7 (kHz) | 1.568 (MHz) |
|------------|-------------|-------------|
| <b>Ach</b> | 0.1         | -0.3        |
| <b>Bch</b> | +0.2        | +0.2        |

Setting the offset dial (For the above calibration values)



## 16. REC CURRENT ADJUSTMENT (TRAILING) (RECORDER deck only)

### Equipment and Tools:

Oscilloscope  
RF level checker PD-817  
I/F box PF-534 for the RF LEVEL CHECKER

### Test Tape:

Test tape TY-30BX  
Test tape TY-7111DX

### Connection

Same as "15. REC CURRENT ADJUSTMENT (LEADING)".

| Procedure  | Adjustments/Checks/Specifications  |                                       |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |               |  |                                  |  |          |  |   |  |
|--|--|---------------------------------------|--|---------------------------------------|--|-------------|-------|----|--|-------------|-------|----|--|-------------|-------|----|--|-------------|-------|----|--|---------------|--|----------------------------------|--|----------|--|---|--|
| <p>(1) Using the <b>[F1]</b> and <b>[F2]</b> keys, select "16. REC CURRENT ADJUSTMENT (TRAILING)".</p> <p>(2) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(3) Insert the test tape (TY-7111DX).</p> <p>(4) According to the table of calibration values attached to the test tape, set the calibration value with the OFF SET dial of the RF level checker (PD-817). *<br/>(Refer to page 2-22).</p> <p>(5) Press the <b>[PLAY]</b> key.<br/>Check that the RF waveform (oscilloscope) is stable.</p> <p>(6) Press the <b>[CAL]</b> key of the RF level checker (PD-817).</p> <p>(7) After completing CAL, and the LED of the <b>[CAL]</b> key stops blinking and lights up, press the <b>[EJECT]</b> key and eject the test tape.</p> | <p>EL Display</p> <table><tr><th colspan="2">RECORDER ADJUSTMENT</th><th colspan="2">16. REC CURRENT ADJUSTMENT (TRAILING)</th></tr><tr><td>REC CURRENT</td><td>PCM-A</td><td>XX</td><td></td></tr><tr><td>REC CURRENT</td><td>PCM-B</td><td>XX</td><td></td></tr><tr><td>REC CURRENT</td><td>ATF-A</td><td>XX</td><td></td></tr><tr><td>REC CURRENT</td><td>ATF-B</td><td>XX</td><td></td></tr><tr><td colspan="2">RECORDER: REC</td><td colspan="2">TIME CODE: 0 0 : 1 0 : 5 8 : 4 0</td></tr><tr><td colspan="2">TEST OFF</td><td colspan="2">↑    </td></tr></table> | RECORDER ADJUSTMENT                   |  | 16. REC CURRENT ADJUSTMENT (TRAILING) |  | REC CURRENT | PCM-A | XX |  | REC CURRENT | PCM-B | XX |  | REC CURRENT | ATF-A | XX |  | REC CURRENT | ATF-B | XX |  | RECORDER: REC |  | TIME CODE: 0 0 : 1 0 : 5 8 : 4 0 |  | TEST OFF |  | ↑ |  |
| RECORDER ADJUSTMENT  |  | 16. REC CURRENT ADJUSTMENT (TRAILING) |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |               |  |                                  |  |          |  |   |  |
| REC CURRENT  | PCM-A  | XX                                    |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |               |  |                                  |  |          |  |   |  |
| REC CURRENT  | PCM-B  | XX                                    |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |               |  |                                  |  |          |  |   |  |
| REC CURRENT  | ATF-A  | XX                                    |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |               |  |                                  |  |          |  |   |  |
| REC CURRENT  | ATF-B  | XX                                    |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |               |  |                                  |  |          |  |   |  |
| RECORDER: REC  |  | TIME CODE: 0 0 : 1 0 : 5 8 : 4 0      |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |               |  |                                  |  |          |  |   |  |
| TEST OFF   |  | ↑                                     |  |                                       |  |             |       |    |  |             |       |    |  |             |       |    |  |             |       |    |  |               |  |                                  |  |          |  |   |  |

(8) Insert the test tape  
(TY-30BX, blank area).

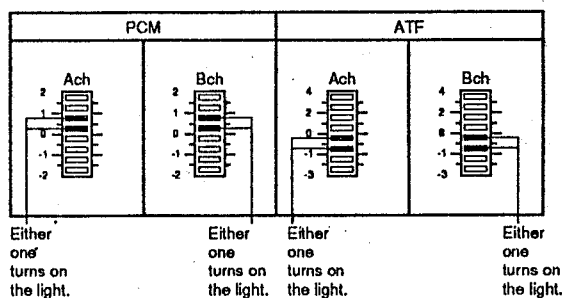
(9) Press the **TRAILING (A/B)**  
key of the RF level checker  
(PD-817). The PCM/ATF (Ach,  
Bch) recording current level of the  
trailing head will be measured  
automatically (Self recording and  
playback).

(10) After measuring, the indicator of the  
**TRAILING** key will stop blinking and  
light up and the recording level will be  
displayed on the level meter of the RF  
level checker. Repeat steps (8), (9),  
and (10) so that the recording level  
satisfies the specification.

(11) Press the **F1** (TEST OFF) key.  
The test tape (TY-30BX) will be  
ejected automatically.

Specification: PCM-A and PCM-B recording level =  $0.5 \pm 0.5$  dB  
ATF-A and ATF-B recording level =  $-0.5 \pm 0.5$  dB

RF Level Checker Level Meter Display



**Adjustment:** Using the **↑** and **↓** keys, select values that do  
not satisfy the specification, and adjust with  
the **F6** and **F7** keys as follows.  
To raise the recording level: Press the **F6** (UP) key  
To lower the recording level: Press the **F7** (DOWN) key

## 17. REC/PB ERROR RATE CHECK

### Equipment and Tools:

Not required

### Test Tape:

Test tape TY-30BX

**Note:** 1. Be sure to mount the top plate when measuring the REC/PB ERROR RATE.  
2. Before performing checks, clean the head with a cleaning tape.

| Procedure  | Adjustments/Checks/Specifications   |
|--|---|
| <p>(1) Using the <b>[F1]</b> and <b>[F2]</b> keys, select "17. REC/PB ERROR RATE CHECK".</p> <p>(2) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(3) Insert the test tape (TY-30BX).</p> <p>(4) Check that "REC HEAD LEADING" is displayed.</p>   | <p>EL Display</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>RECORDER ADJUSTMENT      17. REC/PB ERROR RATE CHECK</p> <p>REC SPEED      X1</p> <p>REC HEAD      LEADING</p> <p>ERROR RATE      A-CH X.XE-X<br/>(TRAILING)      B-CH X.XE-X</p> <p>RECORDER: REC      TIME CODE: 00:10:58:40</p> <p>TEST OFF      SPEED      HEAD</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> |
| <p>(5) Press the <b>[PLAY]</b> key.</p> <p>(6) Press the <b>[AUDIO EDIT]</b> key and check that the error rate of the trailing head playback during the leading head recording (X1) satisfies the specification.</p>   | <p><b>Specification:</b> Error rate A-CH = <math>5E-3</math> (Display)<br/>(Less than or equal <math>5 \times 10</math>)<br/>B-CH = <math>5E-3</math> (Display)<br/>(Less than or equal <math>5 \times 10</math>)</p>   |
| <p>(7) Press the <b>[STOP]</b> key.</p> <p>(8) Press the <b>[F3]</b> (SPEED) key and select "REC SPEED X2".</p> <p>(9) Press the <b>[PLAY]</b> key.</p> <p>(10) Press the <b>[AUDIO EDIT]</b> key and check that the error rate of the trailing head playback during the leading head recording (X1) satisfies the specification.</p>  | <p><b>Specification:</b> Error rate A-CH = <math>5E-3</math> (Display)<br/>(Less than or equal <math>5 \times 10</math>)<br/>B-CH = <math>5E-3</math> (Display)<br/>(Less than or equal <math>5 \times 10</math>)</p>   |
| <p>(11) Press the <b>[STOP]</b> key.</p> <p>(12) Press the <b>[F3]</b> (SPEED) key and select "REC SPEED X1".</p> <p>(13) Press the <b>[F4]</b> (HEAD) key and check that "REC HEAD TRAILING" is displayed.</p> <p>(14) Press the <b>[PLAY]</b> key.</p> <p>(15) Press the <b>[AUDIO EDIT]</b> key and record for twenty seconds.</p> <p>(16) Press the <b>[STOP]</b> key.</p> |   |



|   |  |
|---|--|
| <p>(17) Press SHUTTLE (-2) (<b>[4]</b> key) and rewind until the part where recording starts.</p> <p>Note: Rewind according to the TIME CODE displayed.</p> <p>(18) Press the <b>[PLAY]</b> key, playback the trailing head recording part, and check that the playback error rate satisfies the specification.</p> | <p><b>Specification:</b> Error rate A-CH = 5E-3 (Display)<br/>(Less than or equal 5 × 10)</p> <p>B-CH = 5E-3 (Display)<br/>(Less than or equal 5 × 10)</p> |
| <p>(19) Press the <b>[STOP]</b> key.</p> <p>(20) Press the <b>[F1]</b> (TEST OFF) key.</p> <p>The test tape (TY-30BX) will be ejected automatically.</p>  |  |

## 18. SERVO DATA SAVE

**Equipment and Tools:** Not required

**Test Tape:** Not required

| Procedure   | Checks  |
|---|---|
| <p>(1) Turn on the S1-2 (BIT SW2) switch of the SV-147 board and check that it is on at the top right of the display (Menu of adjustments).</p> <p>(2) Using the <b>[↑]</b> and <b>[↓]</b> keys, select "18. SERVO DATA SAVE".</p> <p>(3) Press the <b>[F1]</b> (TEST ON) key.</p> <p>Check that "MESSAGE: SAVING IS COMPLETED!" is displayed.</p> <p>(4) After checking, press the <b>[F1]</b> (TEST OFF) key.</p> <p>(5) Set the S1 switch of the SV-147 board as follows.</p> <p>S1-1 to S1-4: All off</p> | <p>EL Display</p> <div> <p>RECORDER ADJUSTMENT      18. SERVO DATA SAVE</p> <p>SWP POSITION = 117 (75H) EQ-L-X1 = 64 (40H) REC-L-PCMA1 = 217 (D9H)<br/>EQ-H-X1 = 66 (42H) REC-L-PCMB1 = 217 (D9H)</p> <p>FWD TORQ T = 14 (0EH) EQ-Q-X1 = 59 (3BH) REC-L-ATFA1 = 16 (10H)<br/>FWD TORQ S = 128 (80H) EQ-P-X1 = 44 (2CH) REC-L-ATFB1 = 16 (10H)</p> <p>REV TORQ T = 65 (41H)</p> <p>REV TORQ S = 138 (8AH) EQ-L-X2 = 21 (15H) REC-T-PCMA1 = 217 (D9H)<br/>EQ-H-X2 = 44 (2CH) REC-T-PCMB1 = 217 (D9H)</p> <p>BACK TENTION = 56 (38H) EQ-Q-X2 = 37 (25H) REC-T-ATFA1 = 16 (10H)<br/>EQ-P-X2 = 21 (15H) REC-T-ATFB1 = 16 (10H)</p> <p>END T HIGH = 128 (80H)</p> <p>END S HIGH = 128 (80H)</p> <p>END T LOW = 00 (00H)</p> <p>END S LOW = 00 (00H)</p> <p>MESSAGE</p> <div>SAVING IS COMPLETED!</div> <p>RECORDER: NO TAPE</p> <p>TEST OFF</p> <p>F 1    F 2    F 3    F 4    F 5    F 6    F 7</p> </div> |

## 19. SERVO DATA DISPLAY

**Equipment and Tools:** Not required

**Test Tape:** Not required

**Note:** The servo data display is used for checking the servo data.

By executing it during adjustments, adjustment values can be checked even without saving.

| Procedure  | Check   |
|--|---|
| <p>(1) Using the <b>[↑]</b> and <b>[↓]</b> keys, select "19. SERVO DATA DISPLAY".</p> <p>(2) Press the <b>[F1]</b> (TEST ON) key.</p> <p>(3) Check the servo data on the display.</p> <p>(4) Press the <b>[F2]</b> (EXIT) key.</p> | <p>EL Display</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">RECORDER ADJUSTMENT      19. SERVO DISPLAY</p> <p>SWP POSITION = 117 (75H) EQ-L-X1 = 64 (40H) REC-L-PCMA1 = 217 (D9H)<br/> EQ-H-X1 = 66 (42H) REC-L-PCMB1 = 217 (D9H)<br/> FWD TORQ T = 14 (0EH) EQ-Q-X1 = 59 (3BH) REC-L-ATFA1 = 16 (10H)<br/> FWD TORQ S = 128 (80H) EQ-P-X1 = 44 (2CH) REC-L-ATFB1 = 16 (10H)<br/> REV TORQ T = 65 (41H)<br/> REV TORQ S = 138 (8AH) EQ-L-X2 = 21 (15H) REC-T-PCMA1 = 217 (D9H)<br/> BACK TENTION = 56 (38H) EQ-H-X2 = 44 (2CH) REC-T-PCMB1 = 217 (D9H)<br/> EQ-Q-X2 = 37 (25H) REC-T-ATFA1 = 16 (10H)<br/> EQ-P-X2 = 21 (15H) REC-T-ATFB1 = 16 (10H)<br/> END T HIGH = 128 (80H)<br/> END S HIGH = 128 (80H)<br/> END T LOW = 00 (00H)<br/> END S LOW = 00 (00H)</p> <p>RECORDER: NO TAPE</p> <p style="text-align: center;">-----</p> <p style="text-align: center;">EXIT</p> </div> <p style="text-align: center;">F 1      F 2      F 3      F 4      F 5      F 6      F 7</p> |

### **2-2-3. CHECKS AFTER SV-147 BOARD REPLACEMENT**

Be sure to perform the following checks after replacing the SV-147 board and before mounting the mechanical deck assembly.

#### **Equipment and Tools:**

Not required

#### **Test Tape:**

Blank cassette (Refer to "2-2-1. Preparations".)

#### **Servo Microprocessor Operations Check**

- (1) Turn on the BIT switch (S1-3) of the SV-147 board.
- (2) Turn on the power of the unit.
- (3) Check that the LED (D1) of the SV-147 board blinks every second.
- (4) Insert the blank cassette and turn on the BIT switch (S1-1) of the SV-147 board.
- (5) Check that the blank cassette is ejected and turn off the BIT switch (S1-1).

After completing the above, adjust and check according to "2-2. Adjustments and Checks".

## SECTION 3

### ELECTRICAL ALIGNMENT

This section describes the electrical adjustments that need to be carried out when repairing and servicing the ADA-31 board.

Carry out the following adjustments for the ADA-31 board.

#### Adjustments

##### 3-1. A/D, D/A Adjustments (ADA-31 Board)

###### 3-1-1. A/D Conversion Level Adjustment



###### 3-1-2. D/A Conversion Level Adjustment

#### Equipment Used

| Name           | Specification  | Equipment  |
|----------------|--|--|
| Audio analyzer | <ul style="list-style-type: none"><li>• AF oscillator<br/>Range: 10 to 100 kHz<br/>Level: -70 to +24 dBm</li><li>• Distortion analyzer<br/>(Level meter)</li></ul> | TEKTRONIX<br>SG505 (OP2)<br>AA501 or<br>equivalent |

##### 3-1. A/D, D/A ADJUSTMENTS (ADA-31 BOARD)

#### Preparations:

- Remove the top board and key assembly to carry out this adjustment.

But do not disconnect the harness from the key assembly.  
(For details of removing them, refer to "Maintenance Manual Part 1")

- After setting the mode according to the following procedure, carry out the adjustments.

(For details of setting, refer to "OPERATION GUIDE")

#### Procedure:

- (1) Call "FACTORY SETTING" (factory setting data) at the SET UP mode (EL display) (SUB MODE: SYSTEM).

- (2) Set the SUB MODE: EXT ANALOG (external input mode) of the MANUAL REC mode (EL display).

Carry out the following adjustments in this mode.

### 3-1-1. A/D Conversion Level Adjustment

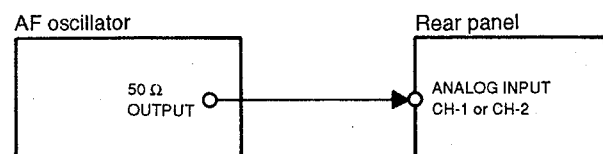
Carry out the electrical adjustment of the A/D block of the ADA-31 board.

Carry this out first when the ADA-31 board has been replaced and then carry out "3-1-2. D/A Conversion Level Adjustment".

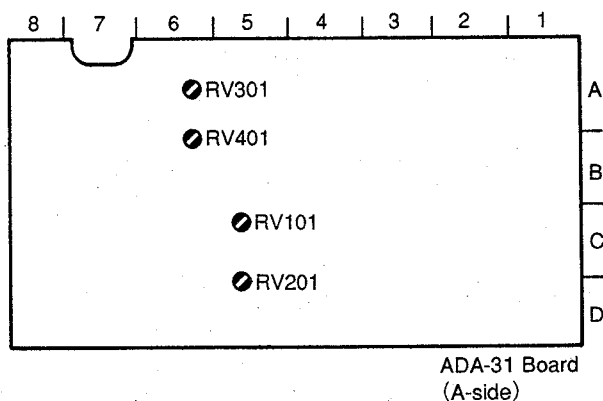
#### Equipment Used

Audio analyzer (AF oscillator)

#### Connection



#### Adjustment Location



#### Preparation Before Adjustments

1. Press function key **[F7]** (METER key) to show the meter value.
2. Check that the GAIN display shows "0.0 dB" for both CH1 and CH2.  
If not, press functions keys **[F6]** (BAL RES) and **[F7]** (LVL RES) and set the display to 0.0 dB.

#### Adjustment

| Step | Adjustment Condition  | Specification                        | Adjustment Location (ADA-31 Board) |
|------|---|--------------------------------------|------------------------------------|
| 1    | • Input the 1 kHz, 4 dBs signal to the ANALOG IN CH1 connector. | METER display CH1 value;<br>-20.0 dB | RV101 (C, 5)                       |
| 2    | • Input the 1 kHz, 4 dBs signal to the ANALOG IN CH2 connector. | METER display CH2 value;<br>-20.0 dB | RV201 (D, 5)                       |

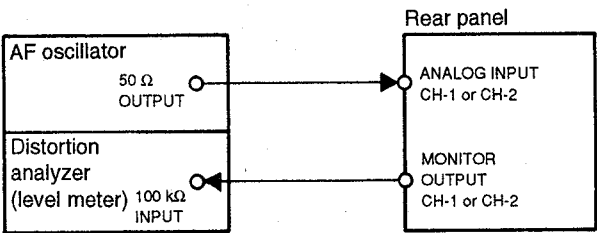
3-1-2. D/A Conversion Level Adjustment

Carry out the electrical adjustment of the D/A block of the ADA-31 board.  
Carry this out after the "3-1-1. A/D Conversion Level Adjustment".

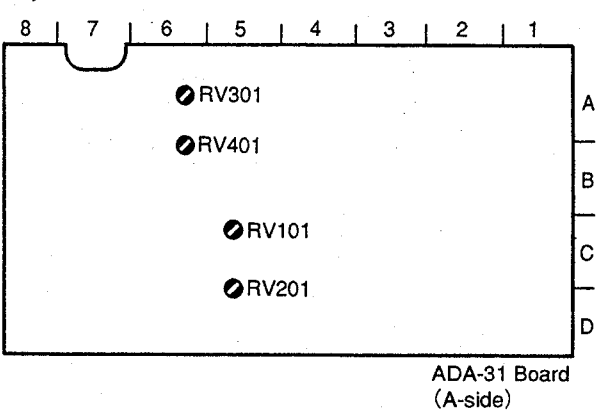
Equipment Used

Audio analyzer (AF oscillator)  
Distortion analyzer (level meter)

Connection



Adjustment Location



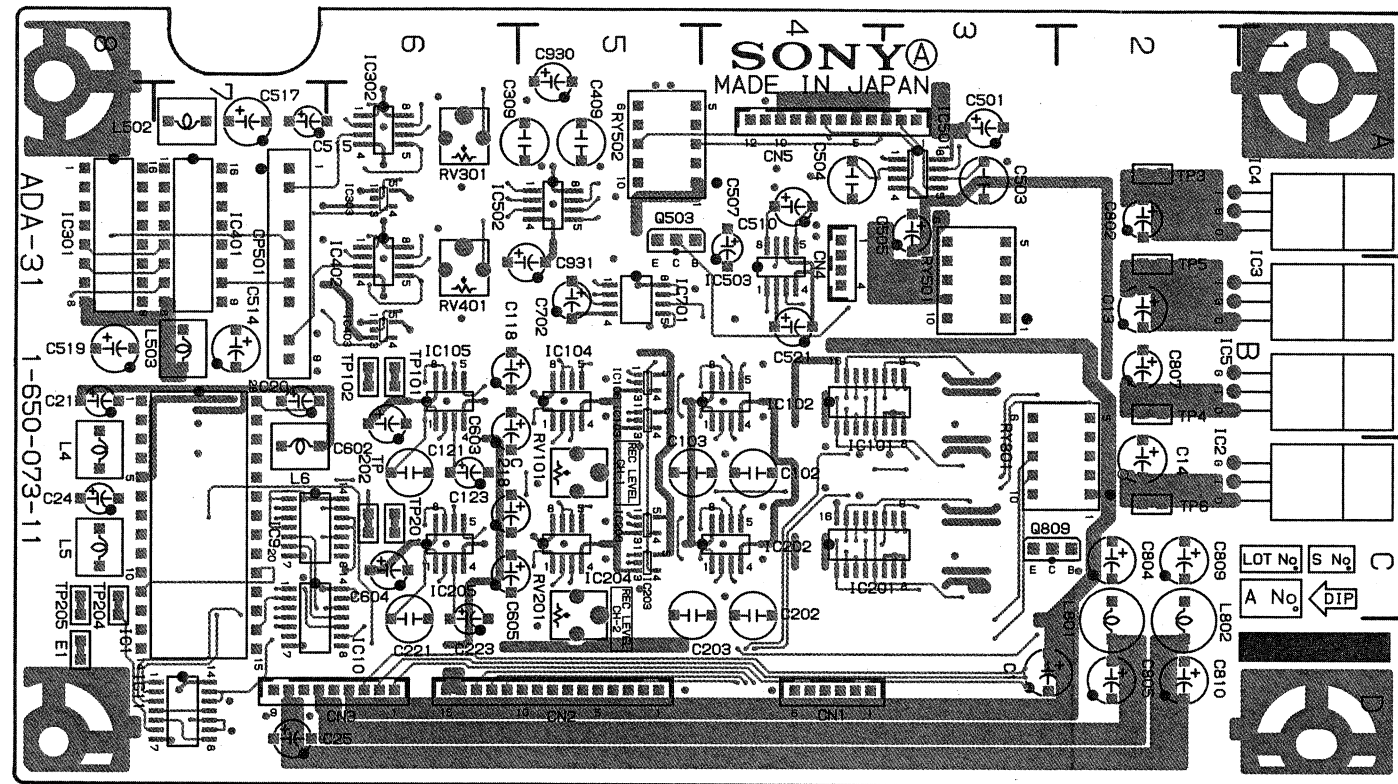
Adjustment

| Step | Adjustment Condition  | Specification   | Adjustment Location (ADA-31 Board) |
|------|---|---|------------------------------------|
| 1    | • Input the 1 kHz, 4 dBs signal to the ANALOG IN CH1 connector. | MONITOR OUTPUT CH1<br>Output level;<br>-10 dBs ± 0.5 dB | RV301 (A, 6)                       |
| 2    | • Input the 1 kHz, 4 dBs signal to the ANALOG IN CH2 connector. | MONITOR OUTPUT CH2<br>Output level;<br>-10 dBs ± 0.5 dB | RV401 (B, 6)                       |

## SECTION 4 BOARD LAYOUTS

| Board                               | Function  | Page |
|-------------------------------------|---|------|
| A ADA-31                            | Rec Audio,A/D Converter:PB Audio,D/A Converter..... | 4-2  |
| C CP-233                            | Connector(ANALOG IN,DIGITAL IN).....                | 4-7  |
| CP-234                              | Connector(MONITOR OUT).....                         | 4-7  |
| H HP-57                             | Headphones.....                                     | 4-8  |
| K KY-247                            | Eject Key.....                                      | 4-8  |
| L LED-160                           | Power Indicator.....                                | 4-8  |
| R RF-53                             | RF Amplifier.....                                   | 4-2  |
| S SSP-8                             | System Control,Signal Processor.....                | 4-4  |
| SV-147                              | Servo.....  | 4-6  |
| V VR-154                            | Rotary Encoder(BALANCE).....                        | 4-8  |
| VR-181                              | Rotary Encoder(LEVEL).....                          | 4-8  |
| OTHERS                              |   |      |
| CAPSTAN FLEXIBLE.....               |   | 4-6  |
| GOMA.....                           |   | 4-6  |
| RECOGN END FLEXIBLE.....            |   | 4-6  |
| REEL FG.....                        |   | 4-6  |
| REEL FG.DEW FLEXIBLE.....           |   | 4-6  |
| TENREGI.....                        |   | 4-6  |
| TENREGI MOTOR ENCODER FLEXIBLE..... |   | 4-6  |

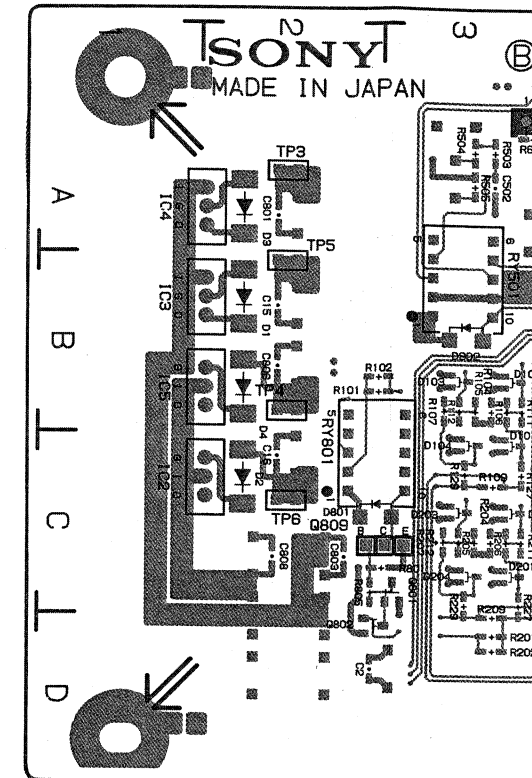
# ADA-31 BOARD A Side



1-650-073-11 A SIDE

A Side is the same as Component Side.

# ADA-31 BOARD B Side



1-650-073-11 B SIDE

B Side is the same as Solder Side.

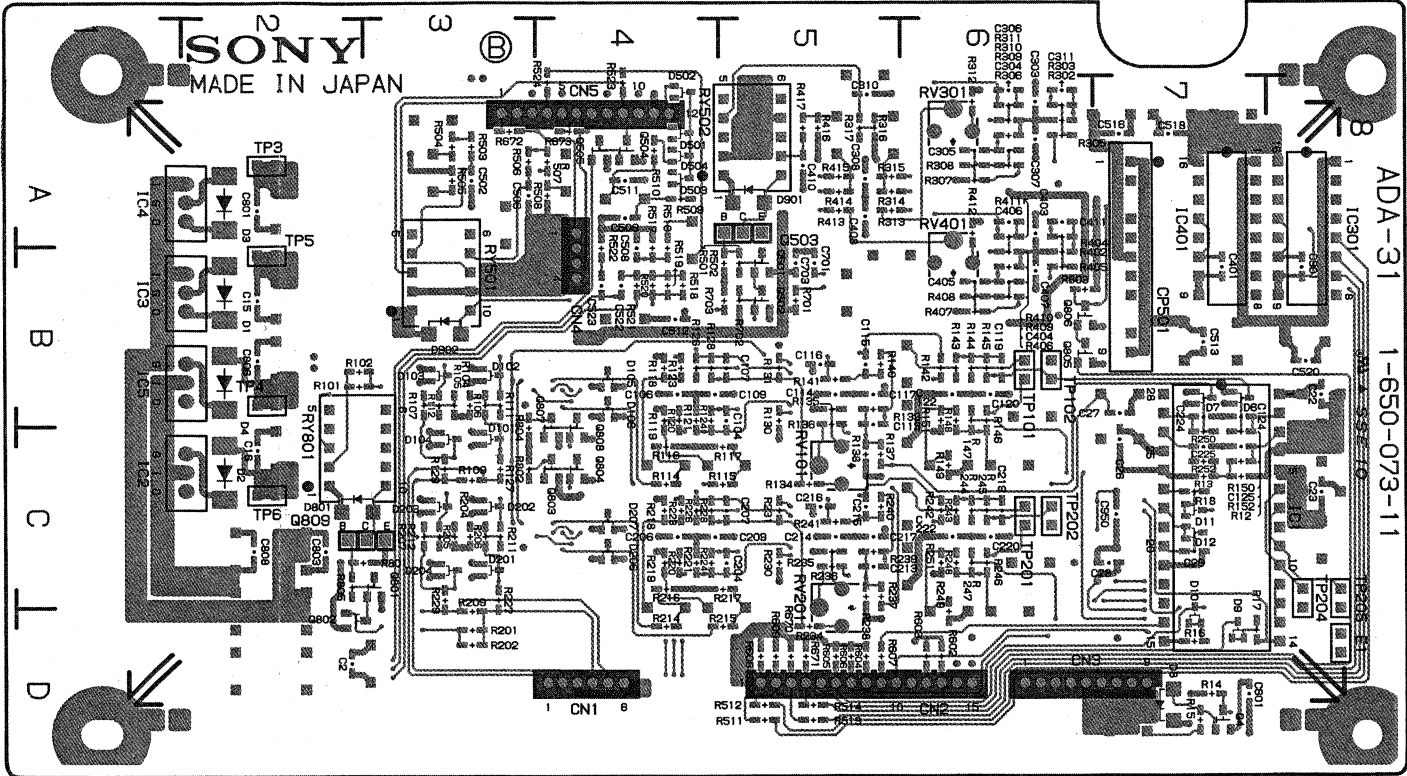
## ADA-31 BOARD 1-650-073-11

|       |      |       |      |
|-------|------|-------|------|
| CN1   | D-4  | IC302 | A-6  |
| CN2   | D-5  | IC303 | A-6  |
| CN3   | D-6  | IC401 | A-7  |
| CN4   | A-4  | IC402 | A-6  |
| CN5   | A-4  | IC403 | B-6  |
|       |      | IC501 | A-3  |
| D1    | *B-2 | IC502 | A-6  |
| D2    | *C-2 | IC503 | B-4  |
| D3    | *A-2 | IC701 | B-5  |
| D4    | *B-2 |       |      |
| D6    | *B-7 | L4    | C-8  |
| D7    | *B-7 | L5    | C-8  |
| D8    | *D-7 | L6    | C-8  |
| D9    | *D-7 | L502  | A-8  |
| D10   | *C-7 | L503  | B-8  |
| D11   | *C-7 | L801  | D-2  |
| D12   | *C-7 | L802  | D-2  |
| D101  | *C-3 |       |      |
| D102  | *B-3 | Q4    | *D-7 |
| D103  | *B-3 | Q501  | *B-5 |
| D104  | *C-3 | Q502  | *B-5 |
| D105  | *B-4 | Q503  | A-5  |
| D106  | *B-4 | Q504  | *A-4 |
| D201  | *C-3 | Q505  | *A-4 |
| D202  | *C-3 | Q801  | *C-3 |
| D203  | *C-3 | Q802  | *C-3 |
| D204  | *C-3 | Q803  | *C-4 |
| D206  | *C-4 | Q804  | *C-4 |
| D207  | *C-4 | Q805  | *B-6 |
| D501  | *A-4 | Q806  | *B-6 |
| D502  | *A-4 | Q807  | *B-4 |
| D503  | *A-4 | Q808  | *C-4 |
| D504  | *A-4 | Q809  | C-3  |
| D801  | *C-2 |       |      |
| D901  | *A-5 | RV101 | C-5  |
| D902  | *B-3 | RV201 | C-5  |
|       |      | RV301 | A-6  |
| E1    | D-8  | RV401 | B-6  |
| IC1   | D-8  | RY501 | B-3  |
| IC2   | B-1  | RY502 | A-5  |
| IC3   | B-1  | RY801 | C-3  |
| IC4   | A-1  |       |      |
| IC5   | B-2  | TP3   | A-2  |
| IC9   | C-7  | TP4   | B-2  |
| IC10  | D-6  | TP5   | B-2  |
| IC11  | D-8  | TP6   | C-2  |
| IC101 | C-4  | TP101 | B-6  |
| IC102 | B-4  | TP102 | B-6  |
| IC103 | B-5  | TP201 | C-6  |
| IC104 | B-5  | TP202 | C-6  |
| IC105 | B-6  | TP204 | C-8  |
| IC106 | B-5  | TP205 | C-8  |
| IC201 | C-4  |       |      |
| IC202 | C-4  |       |      |
| IC203 | C-5  |       |      |
| IC204 | C-5  |       |      |
| IC205 | C-6  |       |      |
| IC206 | C-5  |       |      |
| IC301 | A-8  |       |      |

\*:B(Soldering)Side mount



ADA-31 BOARD  
B Side



1-650-073-11 B SIDE

B Side is the same as Solder Side.

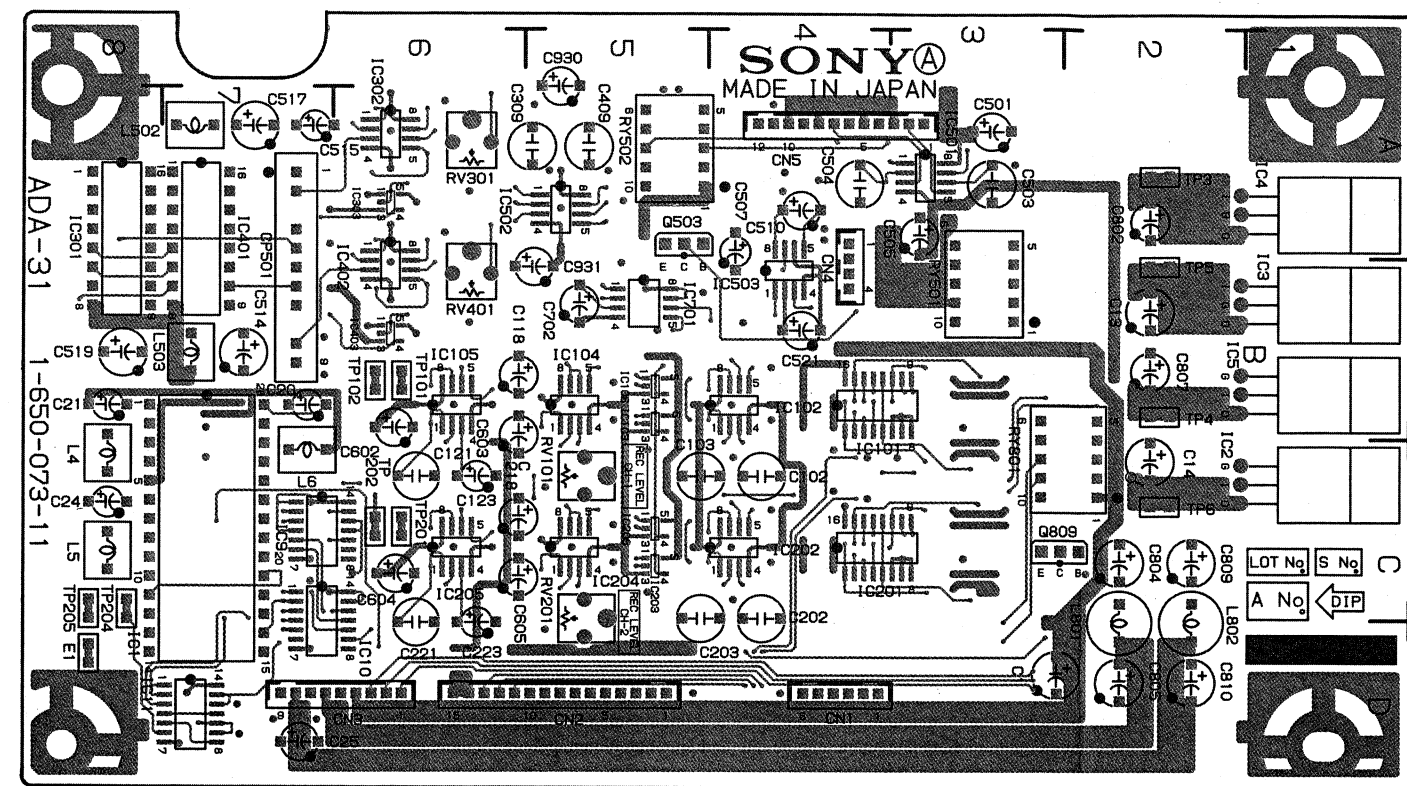
ADA-31 BOARD  
1-650-073-11

|       |     |       |     |
|-------|-----|-------|-----|
| CN1   | D-4 | IC302 | A-6 |
| CN2   | D-5 | IC303 | A-6 |
| CN3   | D-6 | IC401 | A-7 |
| CN4   | A-4 | IC402 | A-6 |
| CN5   | A-4 | IC403 | B-6 |
| D1    | B-2 | IC501 | A-3 |
| D2    | C-2 | IC502 | A-6 |
| D3    | A-2 | IC503 | B-4 |
| D4    | B-2 | IC701 | B-5 |
| D6    | B-7 | L4    | C-8 |
| D7    | B-7 | L5    | C-8 |
| D8    | D-7 | L6    | C-8 |
| D9    | D-7 | L502  | A-8 |
| D10   | C-7 | L503  | B-8 |
| D11   | C-7 | L801  | D-2 |
| D12   | C-7 | L802  | D-2 |
| D101  | C-3 |       |     |
| D102  | B-3 | Q4    | D-7 |
| D103  | B-3 | Q501  | B-5 |
| D104  | C-3 | Q502  | B-5 |
| D105  | B-4 | Q503  | A-5 |
| D106  | B-4 | Q504  | A-4 |
| D201  | C-3 | Q505  | A-4 |
| D202  | C-3 | Q801  | C-3 |
| D203  | C-3 | Q802  | D-3 |
| D204  | C-3 | Q803  | C-4 |
| D206  | C-4 | Q804  | C-4 |
| D207  | C-4 | Q805  | B-6 |
| D501  | A-4 | Q806  | B-6 |
| D502  | A-4 | Q807  | B-4 |
| D503  | A-4 | Q808  | C-4 |
| D504  | A-4 | Q809  | C-3 |
| D801  | C-2 |       |     |
| D901  | A-5 | RV101 | C-5 |
| D902  | B-3 | RV201 | C-5 |
|       |     | RV301 | A-6 |
| E1    | D-8 | RV401 | B-6 |
| IC1   | D-8 | RY501 | B-3 |
| IC2   | B-1 | RY502 | A-5 |
| IC3   | B-1 | RY801 | C-3 |
| IC4   | A-1 |       |     |
| IC5   | B-2 | TP3   | A-2 |
| IC9   | C-7 | TP4   | B-2 |
| IC10  | D-6 | TP5   | B-2 |
| IC11  | D-8 | TP6   | C-2 |
| IC101 | C-4 | TP101 | B-6 |
| IC102 | B-4 | TP102 | B-6 |
| IC103 | B-5 | TP201 | C-6 |
| IC104 | B-5 | TP202 | C-6 |
| IC105 | B-6 | TP204 | C-8 |
| IC106 | B-5 | TP205 | C-8 |
| IC201 | C-4 |       |     |
| IC202 | C-4 |       |     |
| IC203 | C-5 |       |     |
| IC204 | C-5 |       |     |
| IC205 | C-6 |       |     |
| IC206 | C-5 |       |     |
| IC301 | A-8 |       |     |

•:B(Soldering)Side mount

ADA-31 BOARD  
A Side

Serial No. J ;10001 to 10110  
UC;20001 to 20055  
EK;50001 to 50235

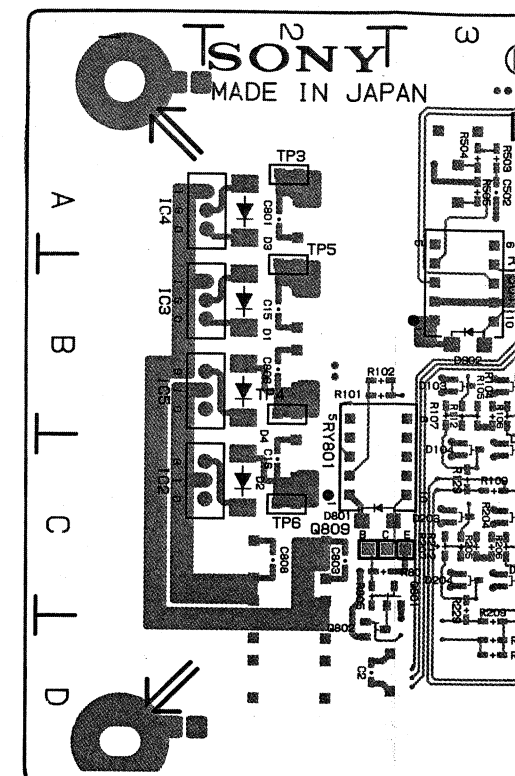


1-650-073-11 A SIDE

A Side is the same as Component Side.

ADA-31 BOARD  
B Side

Serial No. J  
U  
E



1-650-073-11 B SIDE

B Side is the same as Solder Side.

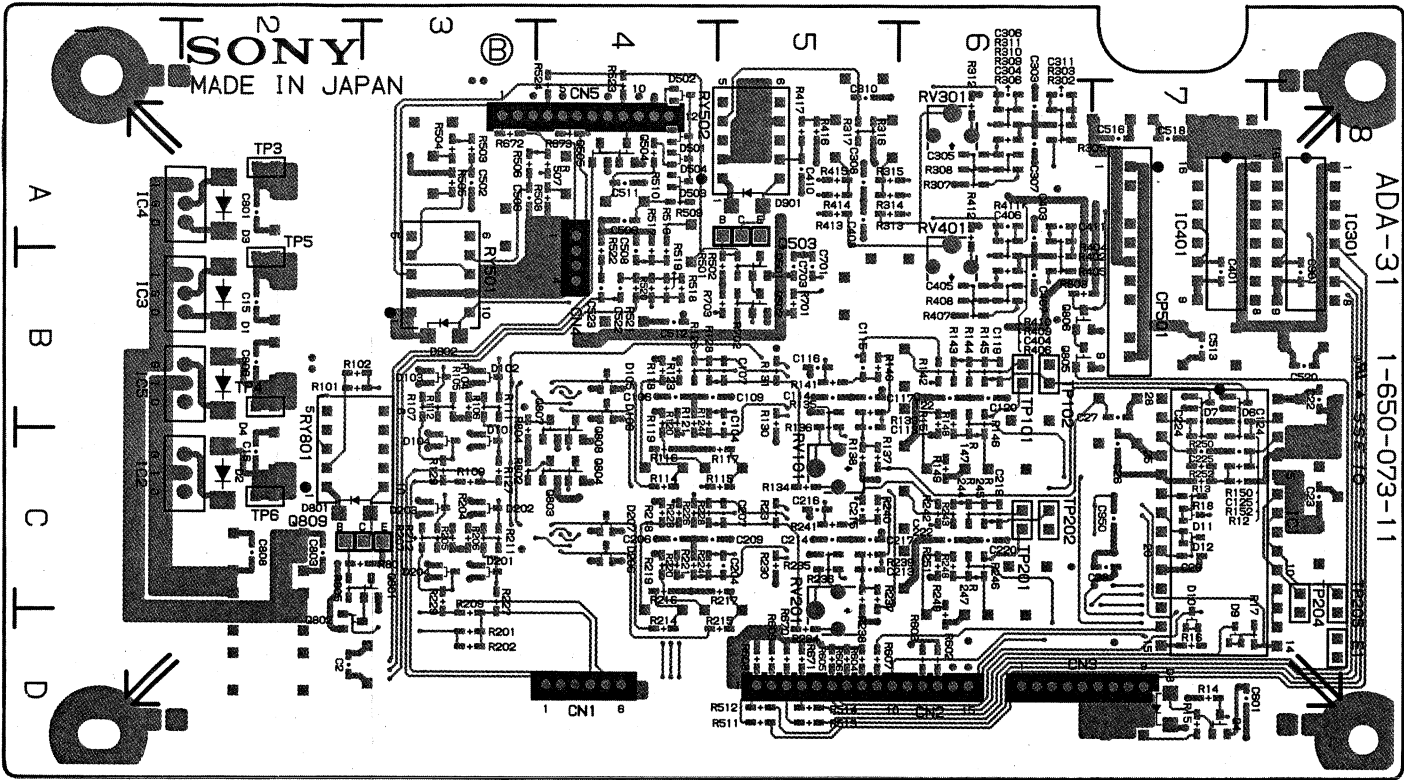
ADA-31 BOARD  
1-650-073-11

|       |     |       |     |
|-------|-----|-------|-----|
| CN1   | D-4 | IC302 | A-6 |
| CN2   | D-5 | IC303 | A-6 |
| CN3   | D-6 | IC401 | A-7 |
| CN4   | A-4 | IC402 | A-6 |
| CN5   | A-4 | IC403 | B-6 |
| D1    | B-2 | IC501 | A-3 |
| D2    | C-2 | IC502 | A-6 |
| D3    | A-2 | IC503 | B-4 |
| D4    | B-2 | IC701 | B-5 |
| D5    | B-7 | L4    | C-8 |
| D6    | B-7 | L5    | C-8 |
| D7    | B-7 | L6    | C-8 |
| D8    | D-7 | L502  | A-8 |
| D9    | D-7 | L503  | B-8 |
| D10   | C-7 | L801  | D-2 |
| D11   | C-7 | L802  | D-2 |
| D12   | C-7 | L802  | D-2 |
| D101  | C-3 | Q4    | D-7 |
| D102  | B-3 | Q501  | B-5 |
| D103  | B-3 | Q502  | B-5 |
| D104  | C-3 | Q503  | A-5 |
| D105  | B-4 | Q504  | A-4 |
| D106  | B-4 | Q505  | A-4 |
| D201  | C-3 | Q801  | C-3 |
| D202  | C-3 | Q802  | D-3 |
| D203  | C-3 | Q803  | C-4 |
| D204  | C-3 | Q804  | C-4 |
| D206  | C-4 | Q805  | B-6 |
| D207  | C-4 | Q806  | B-6 |
| D501  | A-4 | Q807  | B-4 |
| D502  | A-4 | Q808  | C-4 |
| D503  | A-4 | Q809  | C-3 |
| D504  | A-4 | Q809  | C-3 |
| D801  | C-2 | RV101 | C-5 |
| D901  | A-5 | RV201 | C-5 |
| D902  | B-3 | RV301 | A-6 |
| E1    | D-8 | RV401 | B-6 |
| IC1   | D-8 | RY501 | B-3 |
| IC2   | B-1 | RY502 | A-5 |
| IC3   | B-1 | RY801 | C-3 |
| IC4   | A-1 | TP3   | A-2 |
| IC5   | B-2 | TP4   | B-2 |
| IC9   | C-7 | TP5   | B-2 |
| IC10  | D-6 | TP6   | C-2 |
| IC11  | D-8 | TP101 | B-6 |
| IC101 | C-4 | TP102 | B-6 |
| IC102 | B-4 | TP201 | C-6 |
| IC103 | B-5 | TP202 | C-6 |
| IC104 | B-5 | TP204 | C-8 |
| IC105 | B-6 | TP205 | C-8 |
| IC106 | B-5 | TP205 | C-8 |
| IC201 | C-4 |       |     |
| IC202 | C-4 |       |     |
| IC203 | C-5 |       |     |
| IC204 | C-5 |       |     |
| IC205 | C-6 |       |     |
| IC206 | C-5 |       |     |
| IC301 | A-8 |       |     |

\*:B(Soldering)Side mount

ADA-31 BOARD  
B Side

Serial No. J ;10001 to 10110  
UC ;20001 to 20055  
EK ;50001 to 50235



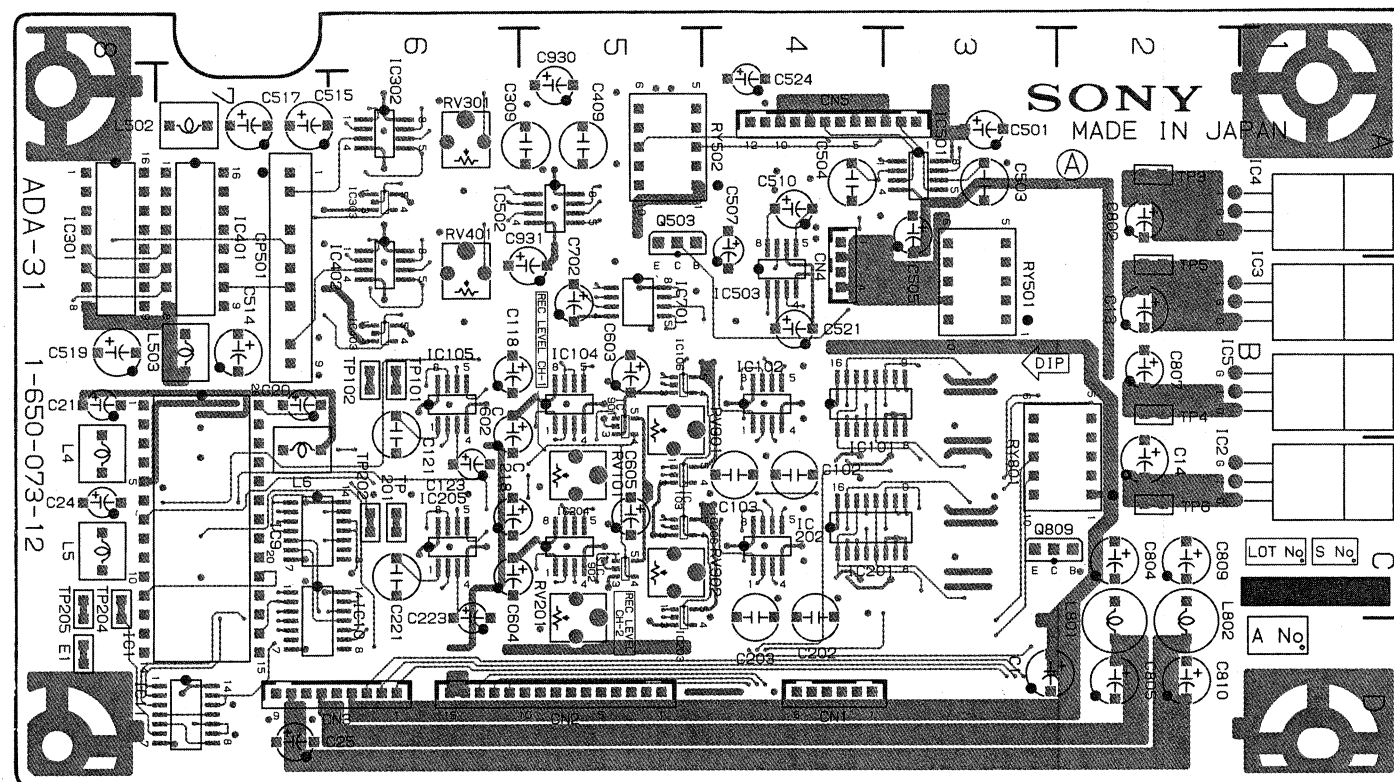
1-650-073-11 B SIDE

B Side is the same as Solder Side.

|              |      |       |      |
|--------------|------|-------|------|
| ADA-31 BOARD |      |       |      |
| 1-650-073-11 |      |       |      |
| CN1          | D-4  | IC302 | A-6  |
| CN2          | D-5  | IC303 | A-6  |
| CN3          | D-6  | IC401 | A-7  |
| CN4          | A-4  | IC402 | A-6  |
| CN5          | A-4  | IC403 | B-6  |
|              |      | IC501 | A-3  |
| D1           | *B-2 | IC502 | A-6  |
| D2           | *C-2 | IC503 | B-4  |
| D3           | *A-2 | IC701 | B-5  |
| D4           | *B-2 |       |      |
| D5           | *B-7 | L4    | C-8  |
| D7           | *B-7 | L5    | C-8  |
| D8           | *D-7 | L6    | C-8  |
| D9           | *D-7 | L502  | A-8  |
| D10          | *C-7 | L503  | B-8  |
| D11          | *C-7 | L801  | D-2  |
| D12          | *C-7 | L802  | D-2  |
| D101         | *C-3 |       |      |
| D102         | *B-3 | Q4    | *D-7 |
| D103         | *B-3 | Q501  | *B-5 |
| D104         | *C-3 | Q502  | *B-5 |
| D105         | *B-4 | Q503  | A-5  |
| D106         | *B-4 | Q504  | A-4  |
| D201         | *C-3 | Q505  | A-4  |
| D202         | *C-3 | Q801  | *C-3 |
| D203         | *C-3 | Q802  | *D-3 |
| D204         | *C-3 | Q803  | *C-4 |
| D206         | *C-4 | Q804  | *C-4 |
| D207         | *C-4 | Q805  | *B-6 |
| D501         | *A-4 | Q806  | *B-6 |
| D502         | *A-4 | Q807  | *B-4 |
| D503         | *A-4 | Q808  | *C-4 |
| D504         | *A-4 | Q809  | C-3  |
| D801         | *C-2 |       |      |
| D901         | *A-5 | RV101 | C-5  |
| D902         | *B-3 | RV201 | C-5  |
|              |      | RV301 | A-6  |
| E1           | D-8  | RV401 | B-6  |
| IC1          | D-8  | RY501 | B-3  |
| IC2          | B-1  | RY502 | A-5  |
| IC3          | B-1  | RY801 | C-3  |
| IC4          | A-1  |       |      |
| IC5          | B-2  | TP3   | A-2  |
| IC9          | C-7  | TP4   | B-2  |
| IC10         | D-6  | TP5   | B-2  |
| IC11         | D-8  | TP6   | C-2  |
| IC101        | C-4  | TP101 | B-6  |
| IC102        | B-4  | TP102 | B-6  |
| IC103        | B-5  | TP201 | C-6  |
| IC104        | B-5  | TP202 | C-6  |
| IC105        | B-6  | TP204 | C-8  |
| IC106        | B-5  | TP205 | C-8  |
| IC201        | C-4  |       |      |
| IC202        | C-4  |       |      |
| IC203        | C-5  |       |      |
| IC204        | C-5  |       |      |
| IC205        | C-6  |       |      |
| IC206        | C-5  |       |      |
| IC301        | A-8  |       |      |

\*:B(Soldering)Side mount

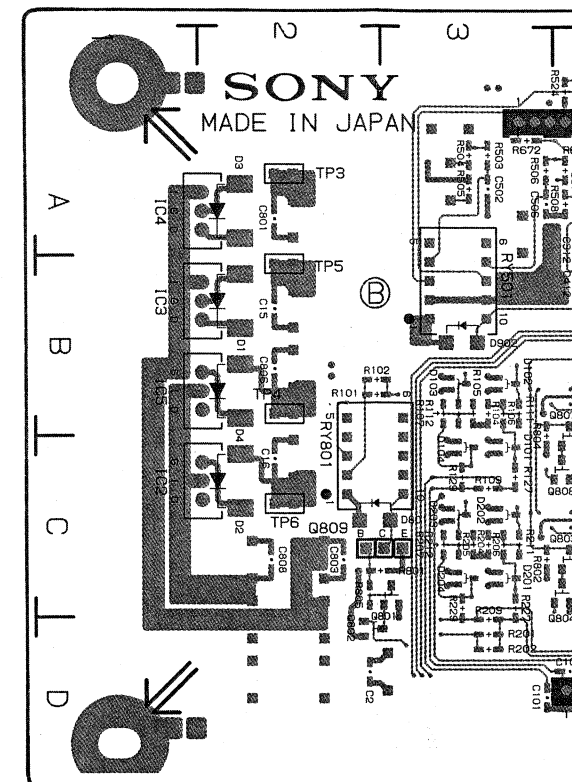
|            |                       |
|------------|-----------------------|
| Serial No. | J ; 10111 and higher  |
|            | UC ; 20056 and higher |
|            | EK ; 50236 and higher |



**1-650-073-12 A SIDE**

**A Side is the same as Component Side.**

Serial No. J ; 101  
UC ; 200  
EK ; 502



1-650-073-12 B SIDE

**B Side is the same as Solder Side.**

| ADA-31 BOARD<br>1-650-073-12 |      |       |      |  |
|------------------------------|------|-------|------|--|
| CN1                          | D-4  | IC302 | A-6  |  |
| CN2                          | D-5  | IC303 | A-6  |  |
| CN3                          | D-6  | IC401 | A-7  |  |
| CN4                          | B-4  | IC402 | A-6  |  |
| CN5                          | A-4  | IC403 | B-6  |  |
| CP501                        | A-7  | IC501 | A-3  |  |
|                              |      | IC502 | A-4  |  |
|                              |      | IC503 | B-6  |  |
| D1                           | B*-2 | IC701 | B-5  |  |
| D2                           | C*-2 | IC901 | B-5  |  |
| D3                           | A*-2 | IC902 | C-5  |  |
| D4                           | B*-2 |       |      |  |
| D6                           | B*-7 | L4    | C-8  |  |
| D7                           | B*-7 | L5    | C-8  |  |
| D8                           | D*-7 | L6    | C-7  |  |
| D9                           | D*-7 | L502  | A-8  |  |
| D10                          | C*-7 | L503  | B-8  |  |
| D11                          | C*-7 | L801  | D-2  |  |
| D12                          | C*-7 | L802  | D-2  |  |
| D101                         | C*-3 |       |      |  |
| D102                         | B*-3 | Q4    | D*-7 |  |
| D103                         | B*-3 | Q501  | B*-5 |  |
| D104                         | C*-3 | Q502  | B*-5 |  |
| D105                         | B*-4 | Q503  | A*-5 |  |
| D106                         | C*-4 | Q504  | A*-4 |  |
| D201                         | C*-3 | Q505  | A*-4 |  |
| D202                         | C*-3 | Q801  | C*-3 |  |
| D203                         | C*-3 | Q802  | D-2  |  |
| D204                         | C*-3 | Q803  | C*-4 |  |
| D206                         | C*-4 | Q804  | C*-4 |  |
| D207                         | C*-4 | Q805  | B*-6 |  |
| D501                         | A*-4 | Q806  | B*-6 |  |
| D502                         | A*-4 | Q807  | B*-4 |  |
| D503                         | A*-4 | Q808  | C*-4 |  |
| D504                         | A*-4 | Q809  | C*-3 |  |
| D801                         | C*-3 | Q901  | C-6  |  |
| D901                         | A*-5 | Q902  | C*-6 |  |
| D902                         | B*-3 |       |      |  |
| E1                           | D-8  | RV101 | C-5  |  |
|                              |      | RV201 | C-5  |  |
|                              |      | RV301 | A-6  |  |
| IC1                          | D-8  | RV401 | A-6  |  |
| IC2                          | C-2  | RV901 | B-4  |  |
| IC3                          | B-1  | RV902 | C-4  |  |
| IC4                          | A-1  |       |      |  |
| IC5                          | B-2  | RY501 | B-3  |  |
| IC9                          | C-7  | RY502 | A-4  |  |
| IC10                         | C-6  | RY801 | C-3  |  |
| IC11                         | D-8  |       |      |  |
| IC101                        | C-4  | TP3   | A-2  |  |
| IC102                        | B-4  | TP4   | B-2  |  |
| IC103                        | C-5  | TP5   | B-2  |  |
| IC104                        | B-5  | TP6   | C-2  |  |
| IC105                        | B-6  | TP101 | B-6  |  |
| IC106                        | B-5  | TP102 | B-6  |  |
| IC201                        | C-4  | TP201 | C-6  |  |
| IC202                        | C-4  | TP202 | C-6  |  |
| IC203                        | D-5  | TP204 | C-8  |  |
| IC204                        | C-5  | TP205 | C-8  |  |
| IC205                        | C-6  |       |      |  |
| IC206                        | C-4  |       |      |  |
| IC301                        | A-8  |       |      |  |

\* ;B(Soldering)Side mount

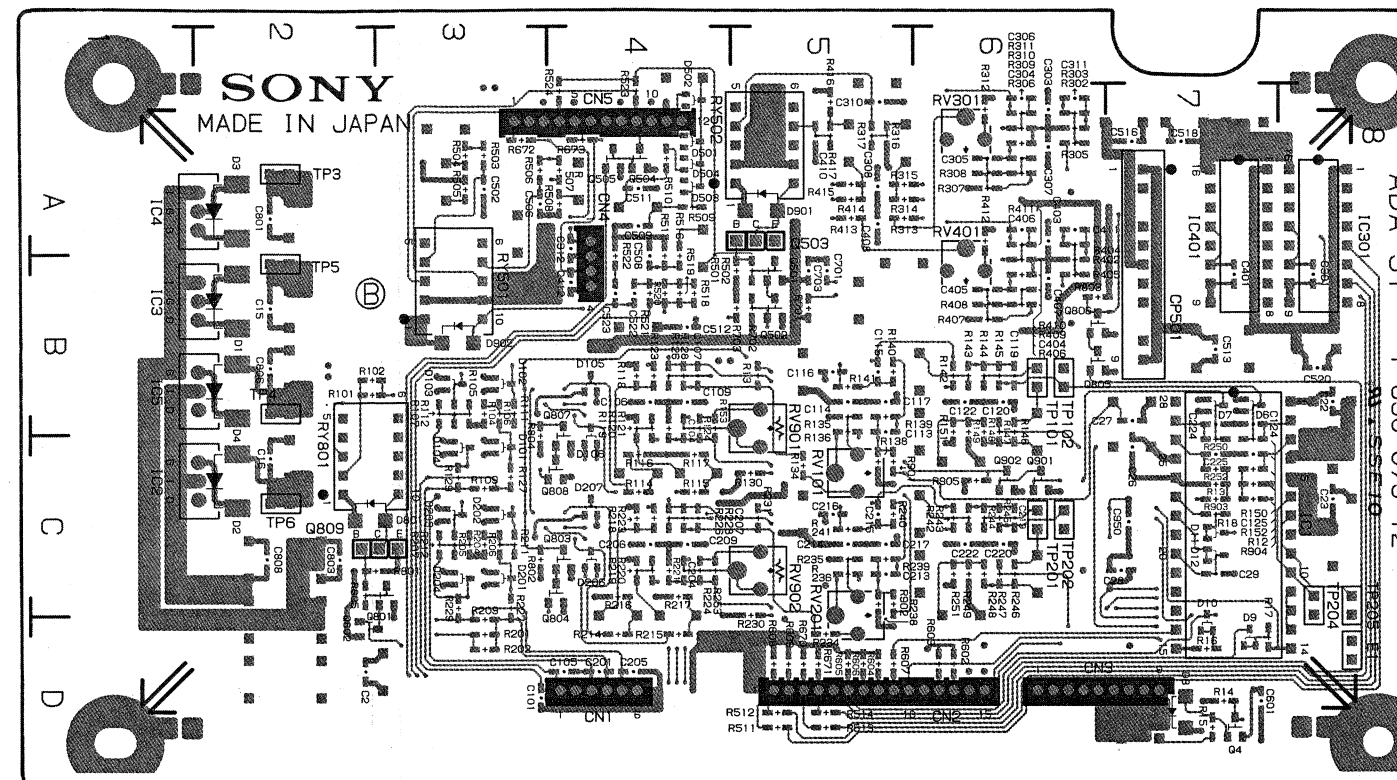
ADA-31 BOARD  
B Side

Serial No. J ;10111 and higher  
UC;20056 and higher  
EK;50236 and higher

ADA-31 BOARD  
1-650-073-12

|       |      |       |      |
|-------|------|-------|------|
| CN1   | D-4  | IC302 | A-6  |
| CN2   | D-5  | IC303 | A-6  |
| CN3   | D-6  | IC401 | A-7  |
| CN4   | B-4  | IC402 | A-6  |
| CN5   | A-4  | IC403 | B-6  |
|       |      | IC501 | A-3  |
| CP501 | A-7  | IC502 | A-6  |
|       |      | IC503 | B-4  |
| D1    | *B-2 | IC701 | B-5  |
| D2    | *C-2 | IC901 | B-5  |
| D3    | *A-2 | IC902 | C-5  |
| D4    | *B-2 |       |      |
| D6    | *B-7 | L4    | C-8  |
| D7    | *B-7 | L5    | C-8  |
| D8    | *D-7 | L6    | C-7  |
| D9    | *D-7 | L502  | A-8  |
| D10   | *C-7 | L503  | B-8  |
| D11   | *C-7 | L801  | D-2  |
| D12   | *C-7 | L802  | D-2  |
| D101  | *C-3 |       |      |
| D102  | *B-3 | Q4    | *D-7 |
| D103  | *B-3 | Q501  | *B-5 |
| D104  | *C-3 | Q502  | *B-5 |
| D105  | *B-4 | Q503  | A-5  |
| D106  | *C-4 | Q504  | *A-4 |
| D201  | *C-3 | Q505  | *A-4 |
| D202  | *C-3 | Q801  | *C-3 |
| D203  | *C-3 | Q802  | *D-2 |
| D204  | *C-3 | Q803  | *C-4 |
| D206  | *C-4 | Q804  | *C-4 |
| D207  | *C-4 | Q805  | *B-6 |
| D501  | *A-4 | Q806  | *B-6 |
| D502  | *A-4 | Q807  | *B-4 |
| D503  | *A-4 | Q808  | *C-4 |
| D504  | *A-4 | Q809  | *C-3 |
| D801  | *C-3 | Q901  | *C-6 |
| D901  | *A-5 | Q902  | *C-6 |
| D902  | *B-3 |       |      |
| E1    | D-8  | RV101 | C-5  |
|       |      | RV201 | C-5  |
| IC1   | D-8  | RV301 | A-6  |
| IC2   | C-2  | RV401 | A-6  |
| IC3   | B-1  | RV901 | B-4  |
| IC4   | A-1  | RV902 | C-4  |
| IC5   | B-2  | RY501 | B-3  |
| IC9   | C-7  | RY502 | A-4  |
| IC10  | C-6  | RY801 | C-3  |
| IC11  | D-8  |       |      |
| IC101 | C-4  | TP3   | A-2  |
| IC102 | B-4  | TP4   | B-2  |
| IC103 | C-5  | TP5   | B-2  |
| IC104 | B-5  | TP6   | C-2  |
| IC105 | B-6  | TP101 | B-6  |
| IC106 | B-5  | TP102 | B-6  |
| IC201 | C-4  | TP201 | C-6  |
| IC202 | C-4  | TP202 | C-6  |
| IC203 | D-5  | TP204 | C-6  |
| IC204 | C-5  | TP205 | C-6  |
| IC205 | C-6  |       |      |
| IC206 | C-4  |       |      |
| IC301 | A-8  |       |      |

\*:B(Soldering)Side mount



1-650-073-12 B SIDE

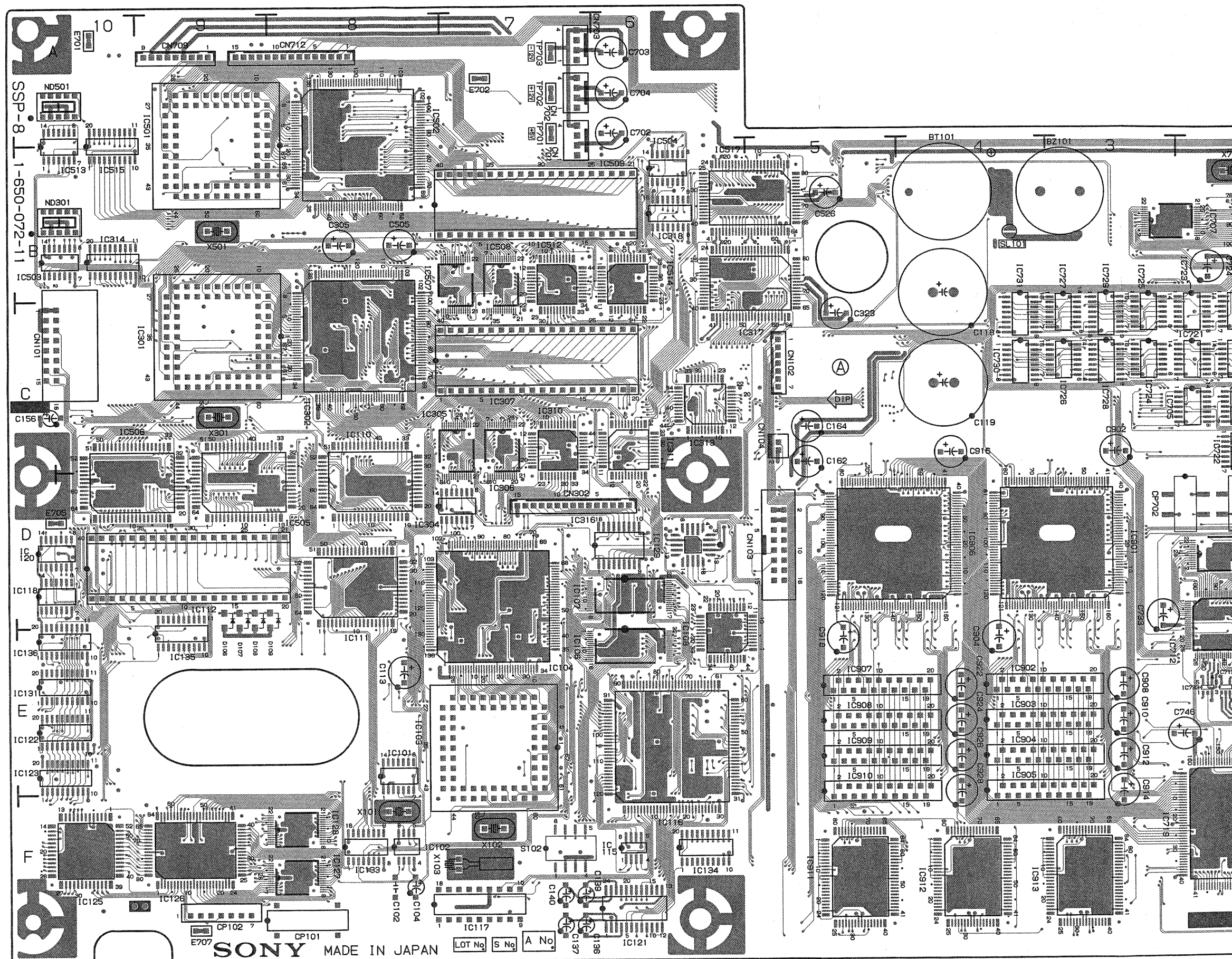
B Side is the same as Solder Side.



**SSP-8 BOARD**  
**A Side**

|       |      |       |      |       |      |      |     |
|-------|------|-------|------|-------|------|------|-----|
| CN101 | C-10 | IC126 | D-10 | IC712 | E-3  |      |     |
| CN102 | C-5  | IC121 | F-8  | IC713 | E-2  |      |     |
| CN103 | D-5  | IC122 | E-10 | IC714 | D-1  |      |     |
| CN104 | C-5  | IC123 | E-10 | IC715 | E-1  |      |     |
| CN302 | D-7  | IC124 | E-10 | IC716 | E-1  |      |     |
| CN303 | B-1  | IC125 | F-10 | IC717 | C-2  |      |     |
| CN501 | F-1  | IC126 | F-9  | IC718 | C-2  |      |     |
| CN701 | B-7  | IC127 | F-8  | IC719 | F-3  |      |     |
| CN702 | A-7  | IC128 | F-8  | IC720 | C-2  |      |     |
| CN703 | A-6  | IC129 | D-6  | IC721 | C-2  |      |     |
| CN704 | F-1  | IC131 | E-10 | IC722 | C-2  |      |     |
| CN706 | B-1  | IC132 | D-6  | IC723 | B-2  |      |     |
| CN707 | B-1  | IC133 | F-8  | IC724 | C-3  |      |     |
| CN708 | E-1  | IC134 | F-6  | IC725 | B-3  |      |     |
| CN709 | A-9  | IC135 | E-9  | IC726 | C-3  |      |     |
| CN710 | B-1  | IC136 | E-10 | IC727 | B-3  |      |     |
| CN711 | E-1  | IC301 | C-9  | IC728 | C-3  |      |     |
| CN712 | A-8  | IC302 | C-8  | IC729 | B-3  |      |     |
| CP101 | F-8  | IC303 | B-8  | IC730 | C-4  |      |     |
|       |      |       |      |       |      |      |     |
|       |      |       |      |       |      |      |     |
|       |      |       |      |       |      |      |     |
|       |      |       |      |       |      |      |     |
| CP102 | F-8  | IC304 | D-8  | IC731 | B-4  |      |     |
| CP103 | F-8  | IC305 | C-8  | IC732 | B-4  |      |     |
| CP701 | D-2  | IC306 | D-7  | IC733 | E-2  |      |     |
| CP702 | D-3  | IC307 | C-7  | IC734 | E-1  |      |     |
| D101  | B-4  | IC309 | C-7  | IC902 | E-4  |      |     |
|       |      |       |      |       |      |      |     |
|       |      |       |      |       |      |      |     |
|       |      |       |      |       |      |      |     |
|       |      |       |      |       |      |      |     |
| D102  | B-4  | IC310 | C-7  | IC903 | E-4  |      |     |
| D103  | B-4  | IC311 | C-6  | IC904 | E-4  |      |     |
| D104  | B-3  | IC312 | D-10 | IC905 | E-4  |      |     |
| D105  | B-3  | IC313 | C-6  | IC906 | D-4  |      |     |
| D106  | E-9  | IC314 | B-10 | IC907 | E-5  |      |     |
| D107  | E-9  | IC316 | D-7  | IC908 | E-5  |      |     |
| D108  | E-9  | IC317 | C-5  | IC909 | E-5  |      |     |
| D109  | E-8  | IC318 | B-6  | IC910 | E-5  |      |     |
| D701  | D-1  | IC319 | B-9  | IC911 | F-5  |      |     |
| D702  | D-1  | IC320 | A-9  | IC912 | F-5  |      |     |
| D703  | C-1  | IC502 | A-8  | IC913 | F-4  |      |     |
| D704  | C-1  | IC503 | B-10 | N301  | B-10 |      |     |
| E701  | A-10 | IC504 | A-6  |       |      |      |     |
|       |      |       |      |       |      |      |     |
|       |      |       |      |       |      |      |     |
|       |      |       |      |       |      |      |     |
| E702  | A-7  | IC506 | C-10 | L703  | C-1  |      |     |
| E705  | D-10 | IC507 | B-8  | L704  | C-1  |      |     |
| E707  | F-9  | IC508 | B-7  | N501  | A-10 |      |     |
| IC101 | E-8  | IC509 | B-6  |       |      |      |     |
|       |      |       |      |       |      |      |     |
|       |      |       |      |       |      |      |     |
|       |      |       |      |       |      |      |     |
| IC102 | F-8  | IC511 | B-7  |       |      | S102 | F-7 |
| IC103 | E-8  | IC512 | B-7  |       |      |      |     |
| IC104 | D-7  | IC513 | E-10 |       |      |      |     |
| IC105 | D-7  | IC514 | B-6  | TP701 | A-7  |      |     |
| IC106 | E-7  | IC515 | B-10 | TP702 | A-7  |      |     |
| IC107 | D-7  | IC517 | B-6  | TP703 | A-7  |      |     |
| IC108 | E-6  | IC701 | C-1  | T701  | D-1  |      |     |
| IC109 | E-6  | IC702 | C-1  |       |      |      |     |
| IC110 | C-8  | IC703 | C-2  |       |      |      |     |
| IC111 | E-8  | IC704 | D-2  |       |      | X101 | F-8 |
| IC112 | D-9  | IC705 | C-3  |       |      | X102 | F-8 |
| IC114 | E-6  | IC706 | C-2  | X103  | F-7  |      |     |
| IC115 | F-6  | IC707 | B-2  | X301  | C-9  |      |     |
| IC116 | F-6  | IC708 | B-2  | X501  | B-9  |      |     |
| IC117 | F-7  | IC709 | B-1  | X701  | B-2  |      |     |
| IC118 | D-10 | IC710 | E-1  | IC119 | D-8  |      |     |
| IC119 | D-8  | IC711 | D-2  |       |      |      |     |

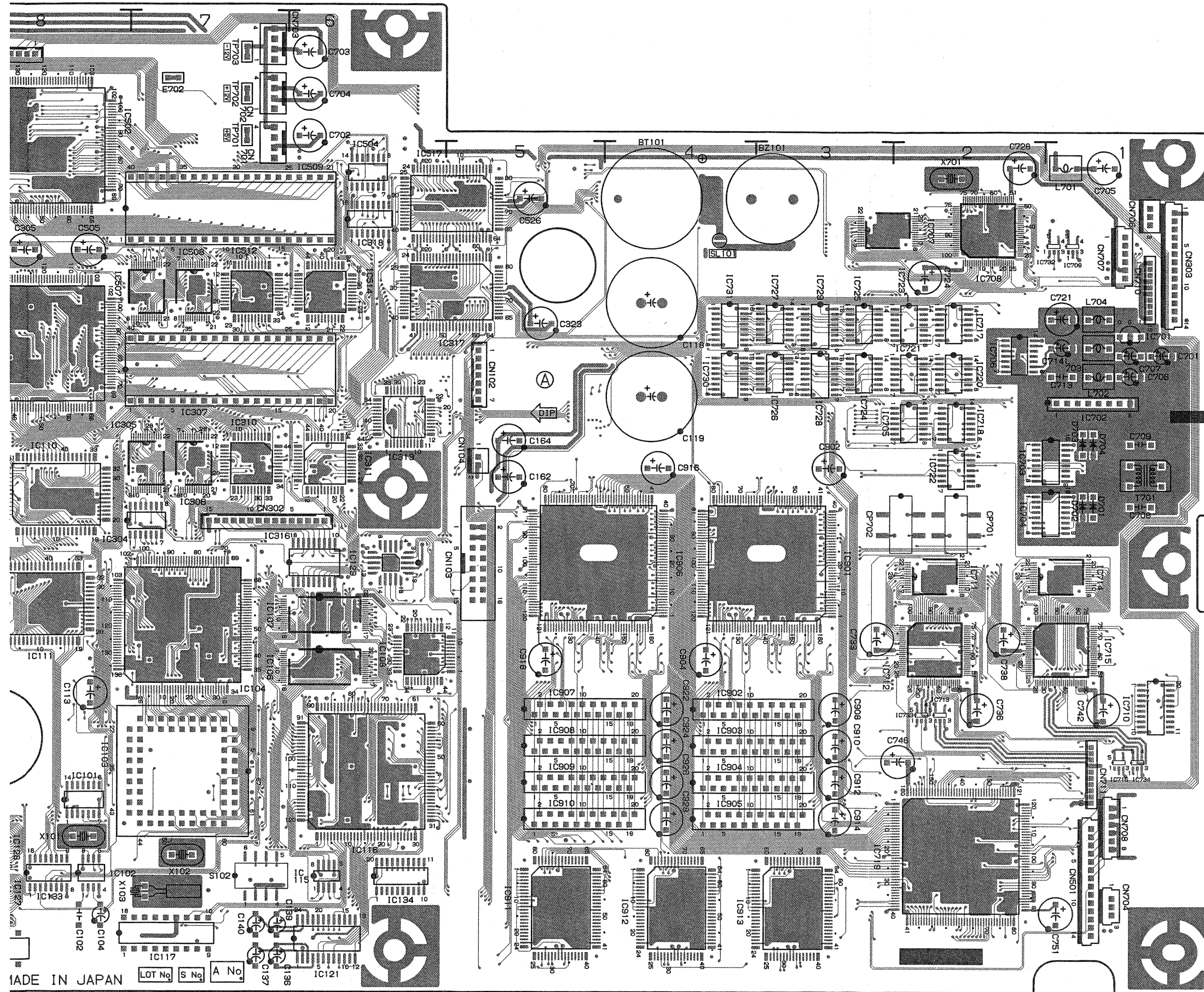
\* : B (Soldering) Side mount



1--650-072-11 A SIDE

**A Side is the same as Component Side.**





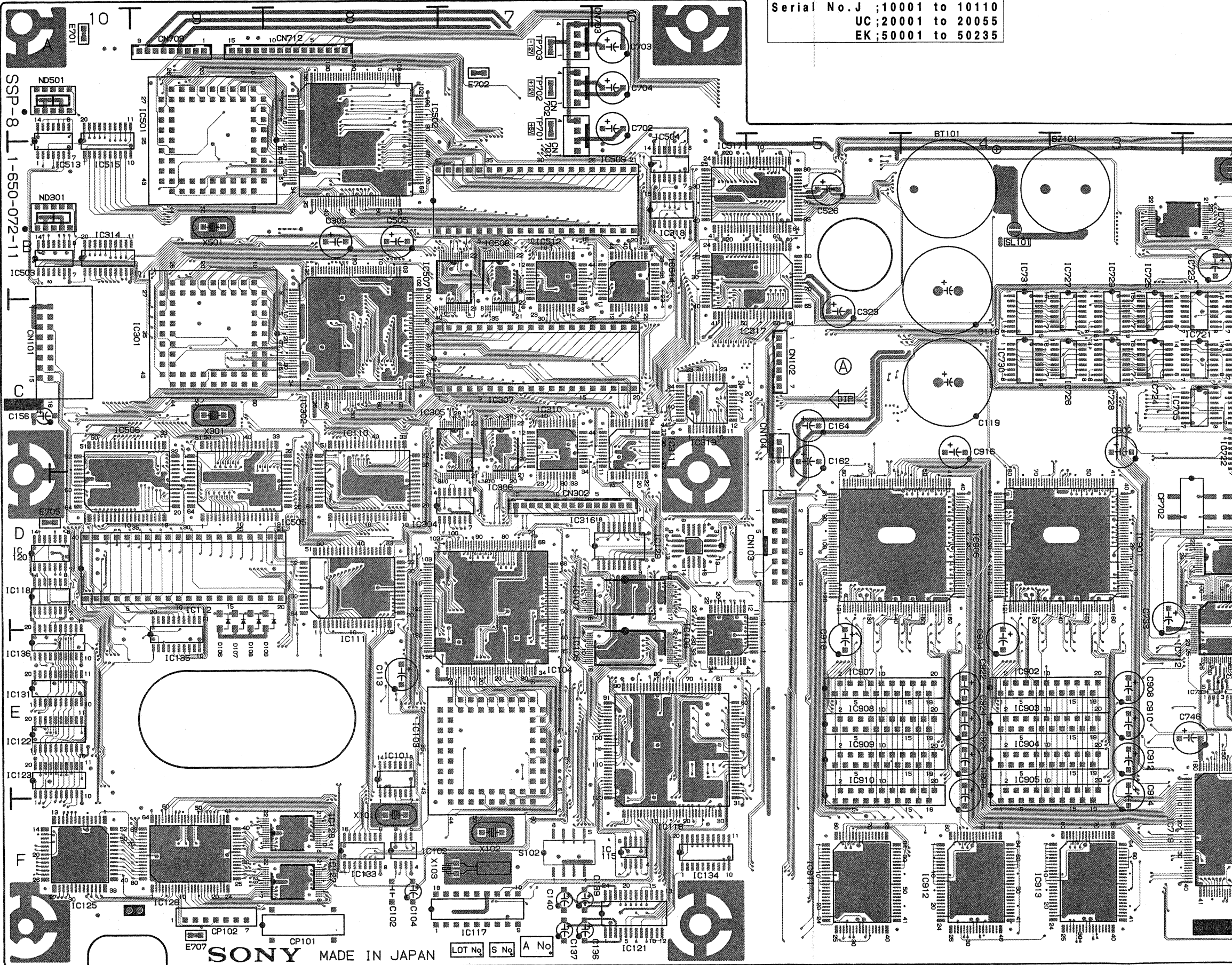


SSP-8 BOARD  
1-650-072-11

|       |      |       |      |       |      |
|-------|------|-------|------|-------|------|
| CN101 | C-10 | IC120 | D-10 | IC712 | E-3  |
| CN102 | C-5  | IC121 | F-6  | IC713 | E-2  |
| CN103 | D-5  | IC122 | E-10 | IC714 | D-1  |
| CN104 | C-5  | IC123 | E-10 | IC715 | E-1  |
| CN302 | D-7  | IC124 | E-10 | IC716 | E-1  |
| CN303 | B-1  | IC125 | F-10 | IC717 | C-2  |
| CN501 | F-1  | IC126 | F-9  | IC718 | C-2  |
| CN701 | B-7  | IC127 | F-8  | IC719 | F-3  |
| CN702 | A-7  | IC128 | F-8  | IC720 | C-2  |
| CN703 | A-6  | IC129 | D-6  | IC721 | C-2  |
| CN704 | F-1  | IC131 | E-10 | IC722 | C-2  |
| CN706 | B-1  | IC132 | D-6  | IC723 | B-2  |
| CN707 | B-1  | IC133 | F-8  | IC724 | C-3  |
| CN708 | F-1  | IC134 | F-6  | IC725 | B-3  |
| CN709 | A-9  | IC135 | E-9  | IC726 | C-3  |
| CN710 | B-1  | IC136 | E-10 | IC727 | B-3  |
| CN711 | E-1  | IC301 | C-9  | IC728 | C-3  |
| CN712 | A-8  | IC302 | C-8  | IC729 | B-3  |
| CP101 | F-8  | IC303 | B-8  | IC730 | C-4  |
| CP102 | F-8  | IC304 | D-8  | IC731 | B-4  |
| CP701 | D-2  | IC305 | C-8  | IC732 | B-2  |
| CP702 | D-3  | IC306 | D-7  | IC733 | E-2  |
|       |      | IC307 | C-7  | IC734 | E-1  |
|       |      | IC308 | E-6  | IC901 | D-3  |
|       |      | IC309 | C-7  | IC902 | E-4  |
|       |      | IC310 | C-7  | IC903 | E-4  |
|       |      | IC311 | C-6  | IC904 | E-4  |
|       |      | IC312 | D-10 | IC905 | E-4  |
|       |      | IC313 | C-6  | IC906 | D-4  |
|       |      | IC314 | B-10 | IC907 | E-5  |
|       |      | IC316 | D-7  | IC908 | E-5  |
|       |      | IC317 | C-5  | IC909 | E-5  |
|       |      | IC318 | B-6  | IC910 | E-5  |
|       |      | IC319 | B-8  | IC911 | F-5  |
|       |      | IC501 | A-9  | IC912 | F-4  |
|       |      | IC502 | A-8  | IC913 | F-4  |
|       |      | IC503 | B-10 |       |      |
|       |      | IC504 | A-6  | L701  | B-1  |
|       |      | IC505 | D-8  | L702  | B-1  |
|       |      | IC506 | C-10 | L703  | C-1  |
|       |      | IC507 | B-8  | L704  | C-1  |
|       |      | IC508 | B-7  |       |      |
|       |      | IC509 | B-6  | ND301 | B-10 |
|       |      | IC510 | B-6  | ND501 | A-10 |
|       |      | IC511 | B-7  |       |      |
|       |      | IC512 | B-7  | S102  | F-7  |
|       |      | IC513 | B-10 |       |      |
|       |      | IC514 | B-6  | TP701 | A-7  |
|       |      | IC515 | B-10 | TP702 | A-7  |
|       |      | IC517 | B-6  | TP703 | A-7  |
|       |      | IC701 | C-1  |       |      |
|       |      | IC702 | C-1  | T701  | D-1  |
|       |      | IC703 | C-2  |       |      |
|       |      | IC704 | D-2  | X101  | F-8  |
|       |      | IC705 | C-3  | X102  | F-7  |
|       |      | IC706 | C-2  | X103  | F-8  |
|       |      | IC707 | B-2  | X301  | C-9  |
|       |      | IC708 | B-2  | X501  | B-9  |
|       |      | IC709 | B-1  | X701  | B-2  |
|       |      | IC710 | E-1  |       |      |
|       |      | IC711 | D-2  |       |      |

\*:B(Soldering)Side mount

SSP-8 BOARD  
A Side



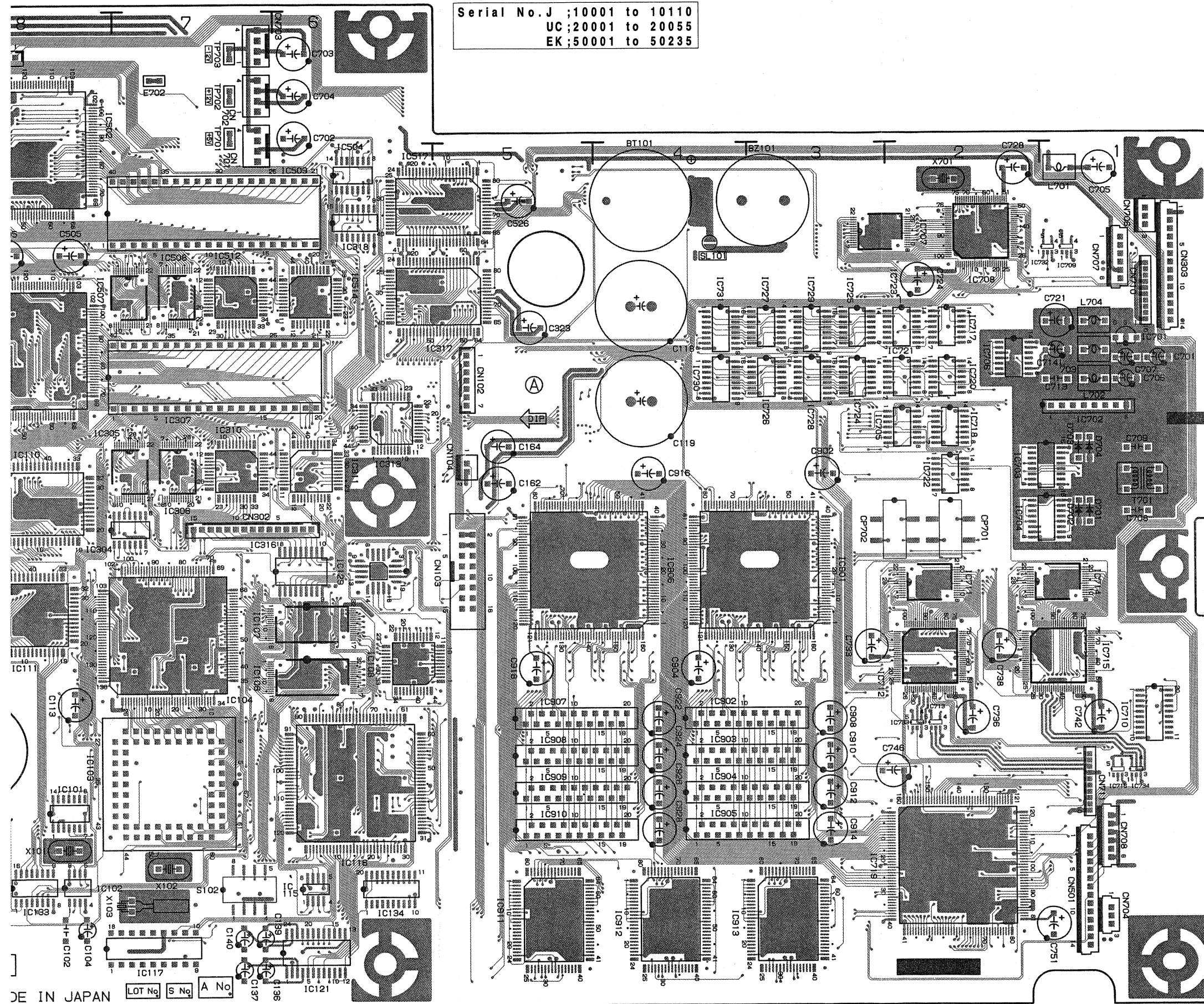
Serial No. J ;10001 to 10110  
UC ;20001 to 20055  
EK ;50001 to 50235

1-650-072-11 A SIDE

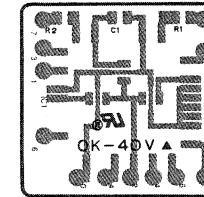
A Side is the same as Component Side.



|            |                   |
|------------|-------------------|
| Serial No. | J ;10001 to 10110 |
|            | UC;20001 to 20055 |
|            | EK;50001 to 50235 |

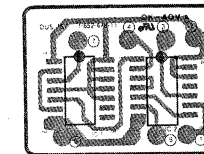


**DUS-746 BOARD**



**1-651-709-11 A SIDE**

**DUS-757 BOARD**

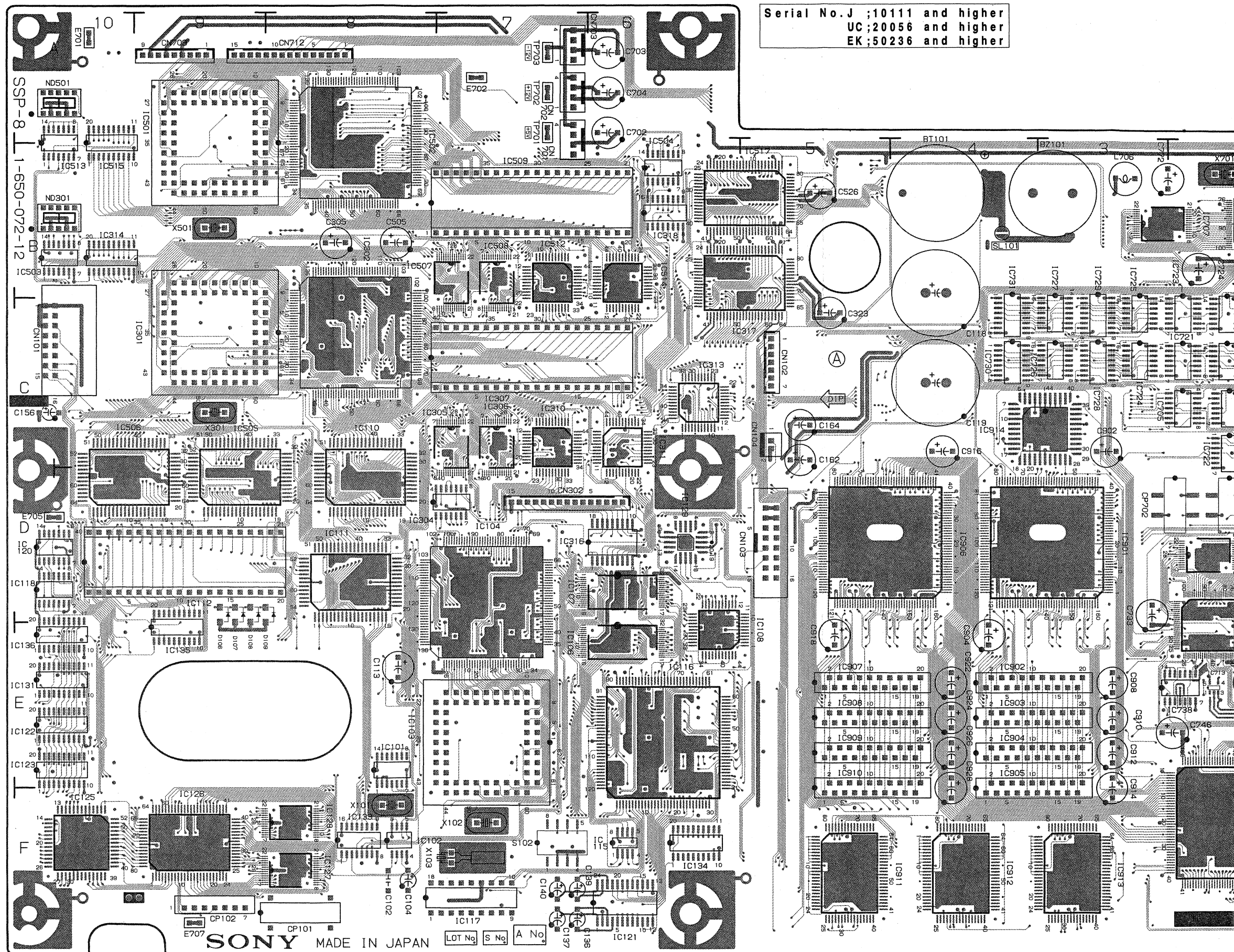


1-652-478-11 A SIDE



# SSP-8 BOARD

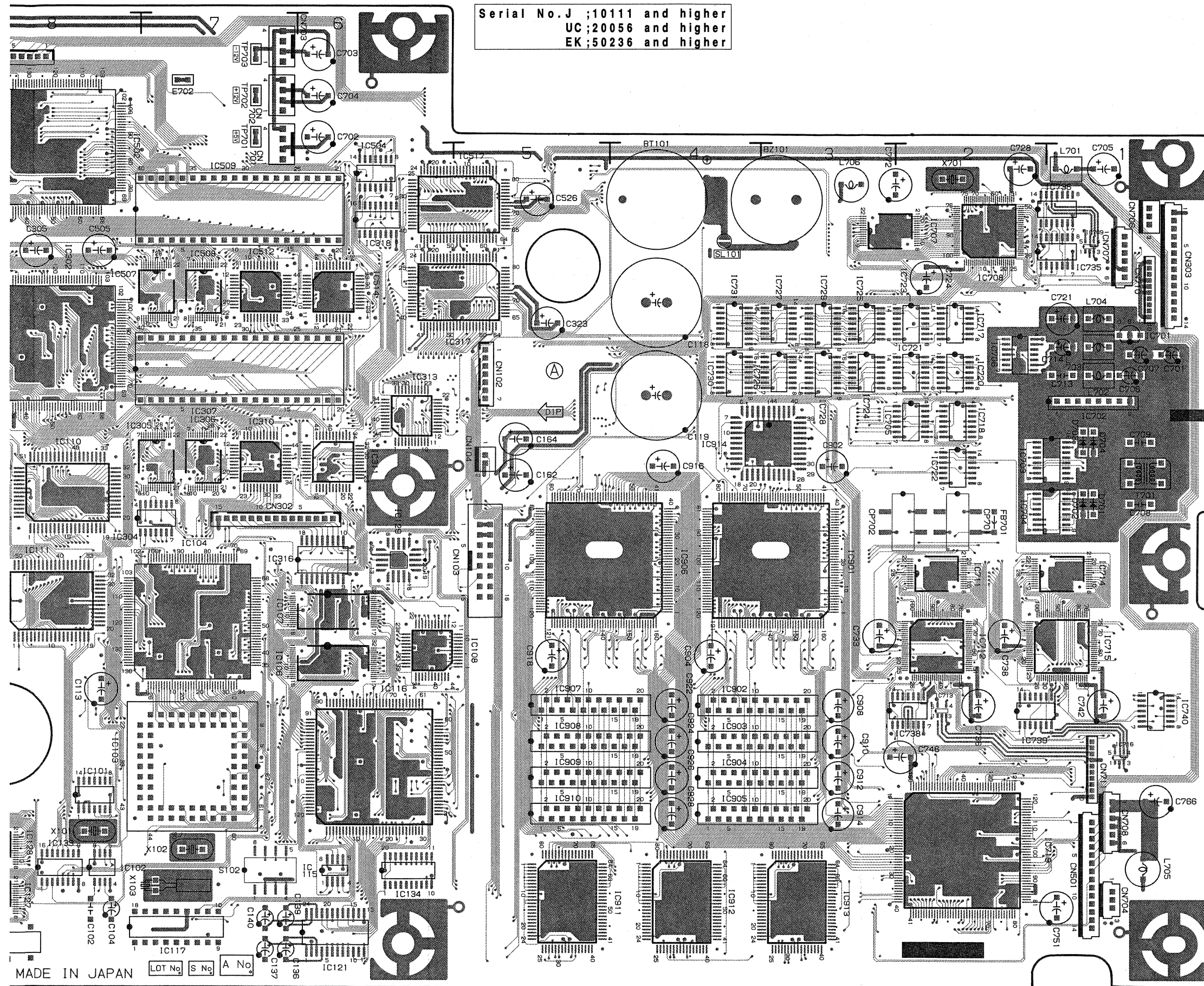
## A Side

\* ;B(Soldering)Side mount

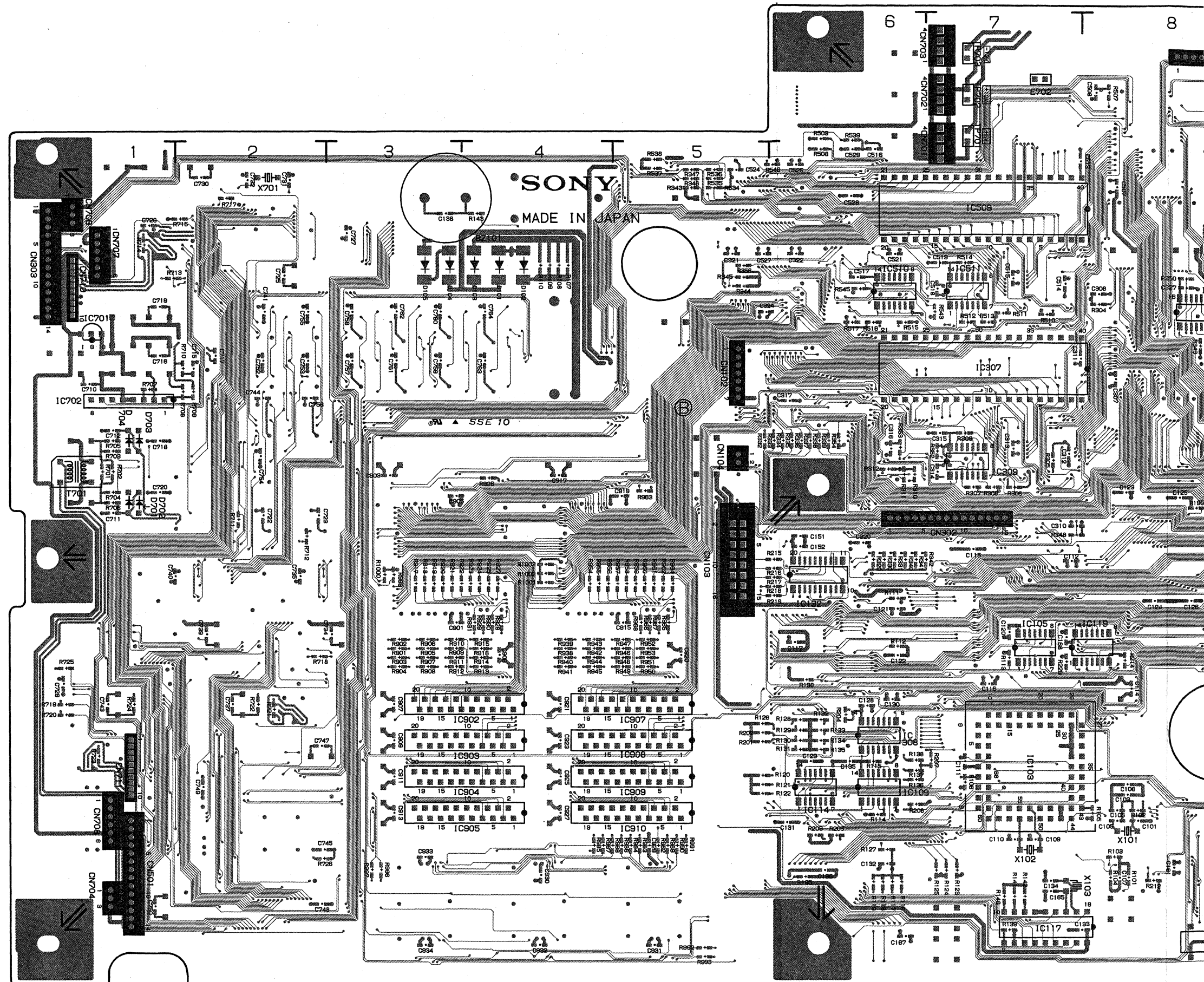
**A Side is the same as Component Side.**



|            |                      |
|------------|----------------------|
| Serial No. | J ;10111 and higher  |
|            | UC ;20056 and higher |
|            | EK ;50236 and higher |



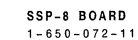
SSP-8 BOARD  
B Side



1-650-072-11 B SIDE

B Side is the same as Solder Side.



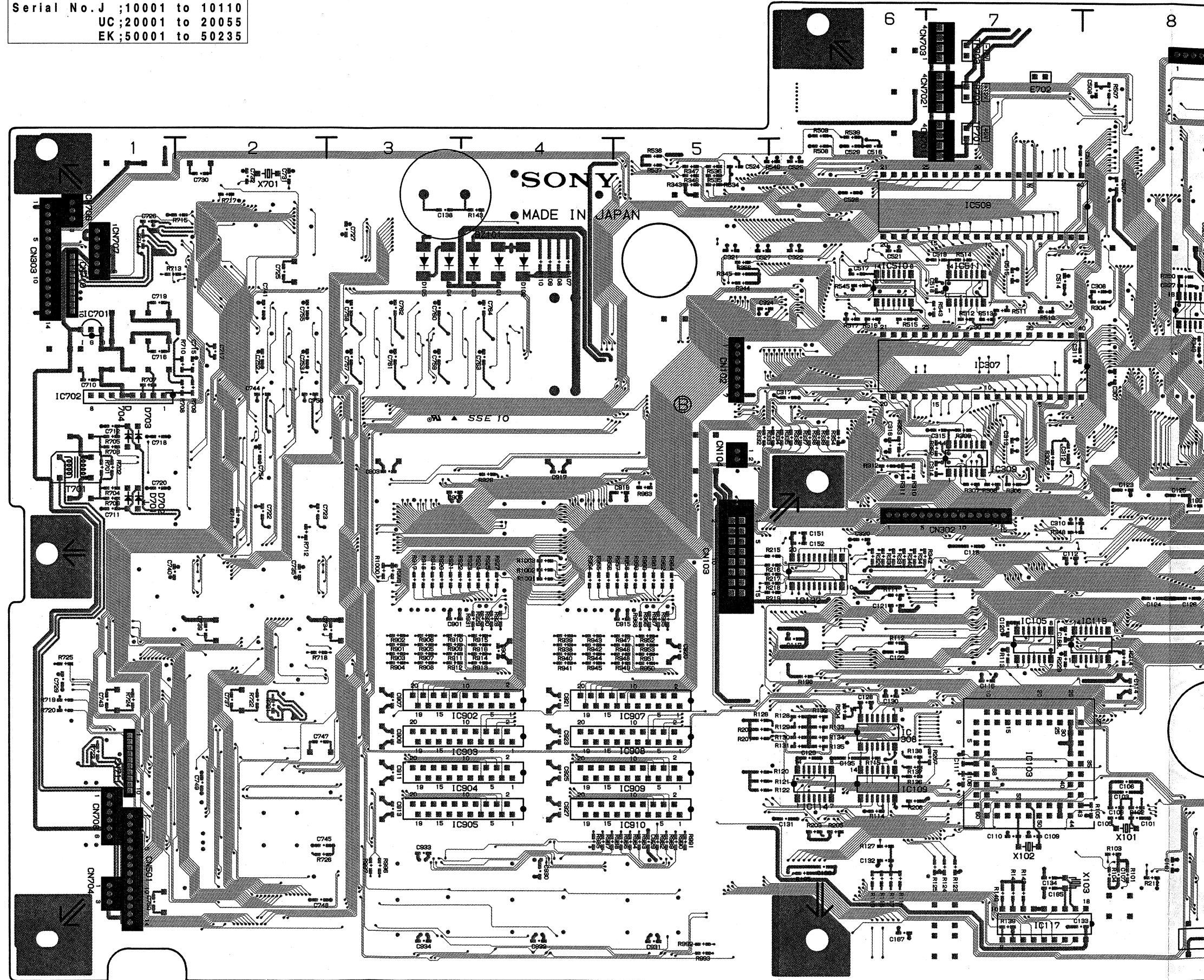


|       |      |       |       |       |      |
|-------|------|-------|-------|-------|------|
| CN101 | C-0  | IC120 | D-10  | IC712 | E-3  |
| CN102 | C-5  | IC121 | F-6   | IC713 | E-2  |
| CN103 | D-5  | IC122 | E-10  | IC714 | D-1  |
| CN104 | C-5  | IC123 | E-10  | IC715 | E-1  |
| CN302 | D-7  | IC124 | F-10  | IC716 | E-1  |
| CN303 | B-1  | IC125 | F-10  | IC717 | C-2  |
| CN501 | F-1  | IC126 | F-9   | IC718 | C-2  |
| CN701 | B-7  | IC127 | F-8   | IC719 | F-3  |
| CN702 | A-7  | IC128 | F-8   | IC720 | C-2  |
| CN703 | A-6  | IC129 | D-6   | IC721 | C-2  |
| CN704 | F-1  | IC131 | E-10  | IC722 | C-2  |
| CN705 | B-1  | IC132 | F-7   | IC723 | B-2  |
| CN707 | -1   | IC133 | F-8   | IC724 | C-3  |
| CN708 | F-1  | IC134 | F-6   | IC725 | B-3  |
| CN709 | A-9  | IC135 | E-9   | IC726 | C-3  |
| CN710 | B-1  | IC136 | E-10  | IC727 | B-3  |
| CN711 | E-1  | IC301 | C-9   | IC728 | C-3  |
| CN712 | A-8  | IC302 | C-8   | IC729 | B-3  |
|       |      | IC303 | +B-8  | IC730 | C-4  |
| CP101 | F-8  | IC304 | D-8   | IC731 | B-4  |
| CP102 | F-9  | IC305 | C-8   | IC732 | B-2  |
| CP701 | D-2  | IC306 | D-7   | IC733 | E-2  |
| CP702 | D-3  | IC306 | E-6   | IC734 | E-3  |
|       |      | IC308 | +E-6  | IC901 | D-3  |
| D101  | +B-4 | IC309 | +C-7  | IC902 | E-4  |
| D102  | +B-4 | IC310 | C-7   | IC903 | E-4  |
| D103  | +B-4 | IC311 | C-6   | IC904 | E-4  |
| D104  | +B-3 | IC312 | +D-10 | IC905 | E-4  |
| D105  | +B-3 | IC313 | C-6   | IC906 | D-4  |
| D106  | E-9  | IC314 | B-10  | IC907 | E-5  |
| D107  | E-9  | IC316 | D-7   | IC908 | E-5  |
| D108  | E-9  | IC317 | C-5   | IC909 | E-5  |
| D109  | E-8  | IC318 | B-6   | IC910 | E-5  |
| D101  | D-1  | IC319 | +B-6  | IC911 | E-5  |
| D102  | D-1  | IC501 | -A-9  | IC912 | F-4  |
| D703  | C-1  | IC502 | A-8   | IC913 | F-4  |
| D704  | C-1  | IC503 | B-10  |       |      |
|       |      | IC504 | A-6   | L701  | B-1  |
| E701  | A-10 | IC505 | D-8   | L702  | B-1  |
| E702  | A-7  | IC506 | C-10  | L703  | C-1  |
| E705  | D-10 | IC507 | B-8   | L704  | C-1  |
| E707  | F-9  | IC508 | B-7   |       |      |
|       |      | IC509 | B-6   | ND301 | B-10 |
| IC101 | E-8  | IC510 | +B-6  | ND501 | A-10 |
| IC102 | F-8  | IC511 | +B-7  |       |      |
| IC103 | E-8  | IC512 | -B-7  | S102  | F-7  |
| IC104 | E-7  | IC513 | B-10  |       |      |
| IC105 | +D-7 | IC514 | B-6   | TP701 | A-7  |
| IC106 | E-7  | IC515 | B-10  | TP702 | A-7  |
| IC107 | D-7  | IC517 | B-6   | TP703 | A-7  |
| IC108 | E-6  | IC701 | C-1   |       |      |
| IC109 | +E-6 | IC702 | C-1   | T701  | D-1  |
| IC110 | C-8  | IC703 | C-2   |       |      |
| IC111 | E-8  | IC704 | D-2   | X101  | F-8  |
| IC112 | D-9  | IC705 | C-3   | X102  | F-7  |
| IC114 | +E-6 | IC706 | C-2   | X103  | F-7  |
| IC115 | F-6  | IC707 | D-2   | X301  | C-9  |
| IC116 | F-6  | IC708 | B-2   | X501  | B-9  |
| IC117 | F-7  | IC709 | B-1   | X701  | B-2  |
| IC118 | D-10 | IC710 | E-1   |       |      |
| IC119 | +D-8 | IC711 | D-2   |       |      |

\* ;B(Soldering)Side mount

SSP-8 BOARD  
B Side

|            |                    |
|------------|--------------------|
| Serial No. | J ;10001 to 10110  |
|            | UC ;20001 to 20055 |
|            | EK ;50001 to 50235 |

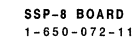


1-650-072-11 B SIDE

**B Side is the same as Solder Side.**

**4 - 5 ( a )**



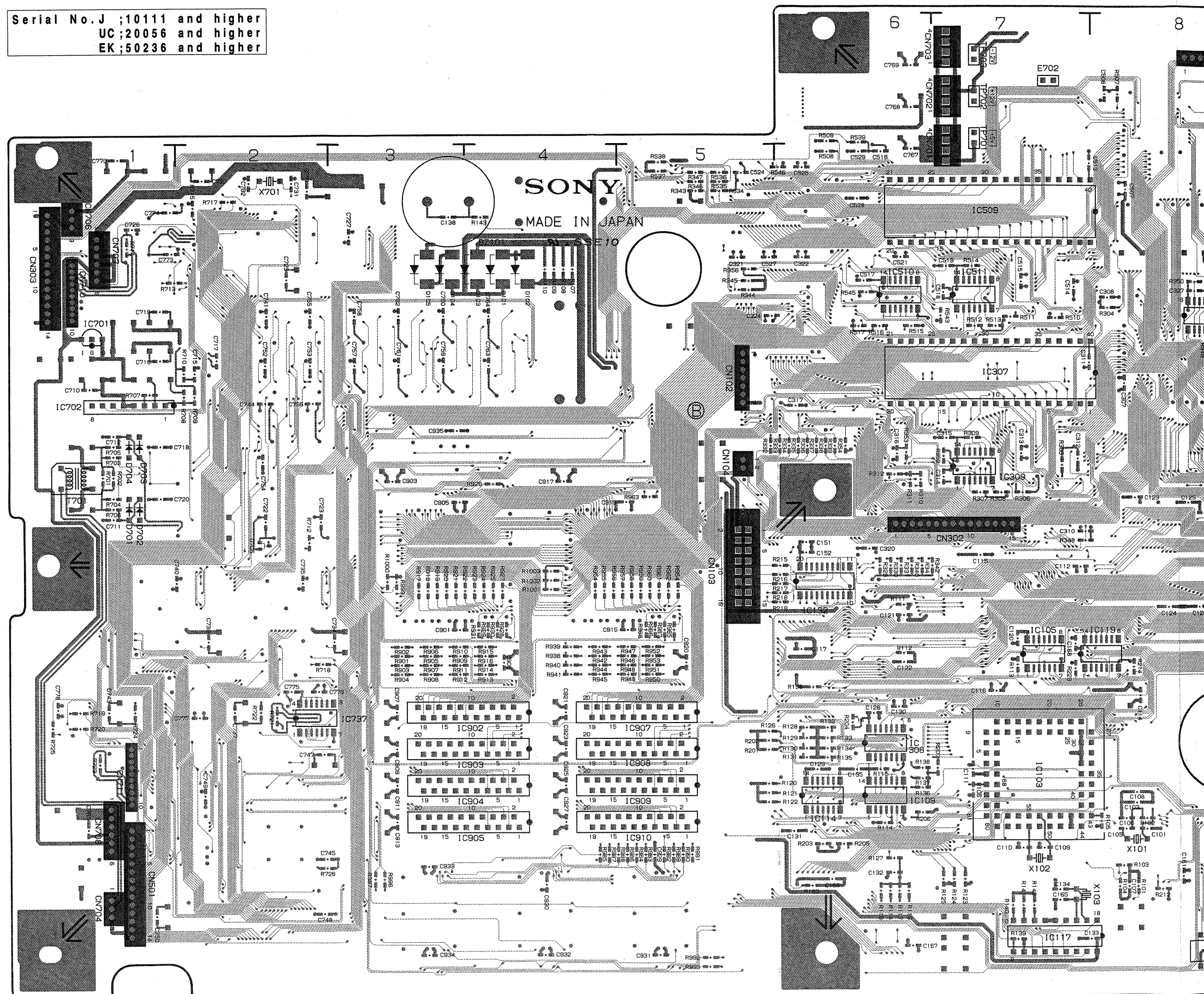


|       |      |       |       |       |      |
|-------|------|-------|-------|-------|------|
| CN101 | C-10 | IC120 | D-10  | IC712 | E-3  |
| CN102 | C-5  | IC121 | F-6   | IC713 | E-2  |
| CN103 | D-5  | IC122 | E-10  | IC714 | D-1  |
| CN104 | C-5  | IC123 | E-10  | IC715 | E-1  |
| CN302 | D-7  | IC124 | *E-10 | IC716 | E-1  |
| CN303 | B-1  | IC125 | F-10  | IC717 | C-2  |
| CN501 | F-1  | IC126 | F-9   | IC718 | C-2  |
| CN701 | B-7  | IC127 | F-8   | IC719 | F-3  |
| CN702 | A-7  | IC128 | F-8   | IC720 | C-2  |
| CN703 | A-6  | IC129 | D-6   | IC721 | C-2  |
| CN704 | F-1  | IC131 | E-10  | IC722 | C-2  |
| CN706 | B-1  | IC132 | *D-6  | IC723 | B-2  |
| CN707 | B-1  | IC133 | F-8   | IC724 | C-3  |
| CN708 | F-1  | IC134 | F-6   | IC725 | B-3  |
| CN709 | A-9  | IC135 | E-9   | IC726 | C-3  |
| CN710 | B-1  | IC136 | E-10  | IC727 | B-3  |
| CN711 | E-1  | IC301 | C-9   | IC728 | C-3  |
| CN712 | A-8  | IC302 | C-8   | IC729 | B-3  |
|       |      | IC303 | *B-8  | IC730 | C-4  |
| CP101 | F-8  | IC304 | D-8   | IC731 | B-4  |
| CP102 | F-9  | IC305 | C-8   | IC732 | B-4  |
| CP701 | D-2  | IC306 | D-7   | IC733 | E-2  |
| CP702 | D-3  | IC307 | C-7   | IC734 | E-1  |
|       |      | IC308 | *E-6  | IC901 | D-3  |
| D101  | *B-4 | IC309 | *C-7  | IC902 | E-4  |
| D102  | *B-4 | IC310 | C-7   | IC903 | E-4  |
| D103  | *B-4 | IC311 | C-6   | IC904 | E-4  |
| D104  | *B-3 | IC312 | *D-10 | IC905 | E-4  |
| D105  | *B-3 | IC313 | C-6   | IC906 | D-4  |
| D106  | E-9  | IC314 | B-10  | IC907 | E-5  |
| D107  | E-9  | IC316 | D-7   | IC908 | E-5  |
| D108  | E-9  | IC317 | C-5   | IC909 | E-5  |
| D109  | E-8  | IC318 | B-6   | IC910 | E-5  |
| D101  | D-1  | IC319 | *B-9  | IC911 | F-5  |
| D702  | D-1  | IC501 | A-9   | IC912 | F-4  |
| D703  | C-1  | IC502 | A-8   | IC913 | F-4  |
| D704  | C-1  | IC503 | B-10  |       |      |
|       |      | IC504 | A-6   | L701  | B-1  |
| E701  | A-10 | IC505 | D-8   | L702  | B-1  |
| E702  | A-7  | IC506 | C-10  | L703  | C-1  |
| E705  | D-10 | IC507 | B-8   | L704  | C-1  |
| E707  | F-9  | IC508 | B-7   |       |      |
|       |      | IC509 | B-6   | ND301 | B-10 |
| IC101 | E-8  | IC510 | B-6   | ND501 | A-10 |
| IC102 | F-8  | IC511 | *B-7  |       |      |
| IC103 | E-8  | IC512 | B-7   | S102  | F-7  |
| IC104 | E-7  | IC513 | B-10  |       |      |
| IC105 | *D-7 | IC514 | B-6   | TP701 | A-7  |
| IC106 | E-7  | IC515 | B-10  | TP702 | A-7  |
| IC107 | D-7  | IC517 | B-6   | TP703 | A-7  |
| IC108 | E-6  | IC701 | C-1   |       |      |
| IC109 | *E-6 | IC702 | C-1   | T701  | D-1  |
| IC110 | C-8  | IC703 | C-2   |       |      |
| IC111 | E-8  | IC704 | D-2   | X101  | F-8  |
| IC112 | E-9  | IC705 | C-7   | X102  | F-7  |
| IC114 | *E-8 | IC706 | C-2   | X103  | F-8  |
| IC115 | F-6  | IC707 | B-2   | X301  | C-9  |
| IC116 | F-6  | IC708 | B-2   | X501  | B-9  |
| IC117 | F-7  | IC709 | B-1   | X701  | B-2  |
| IC118 | D-10 | IC710 | E-1   |       |      |
| IC119 | *D-8 | IC711 | D-2   |       |      |

\* ;B(Soldering)Side mount

SSP-8 BOARD  
B Side

Serial No. J ;10111 and higher  
UC;20056 and higher  
EK;50236 and higher

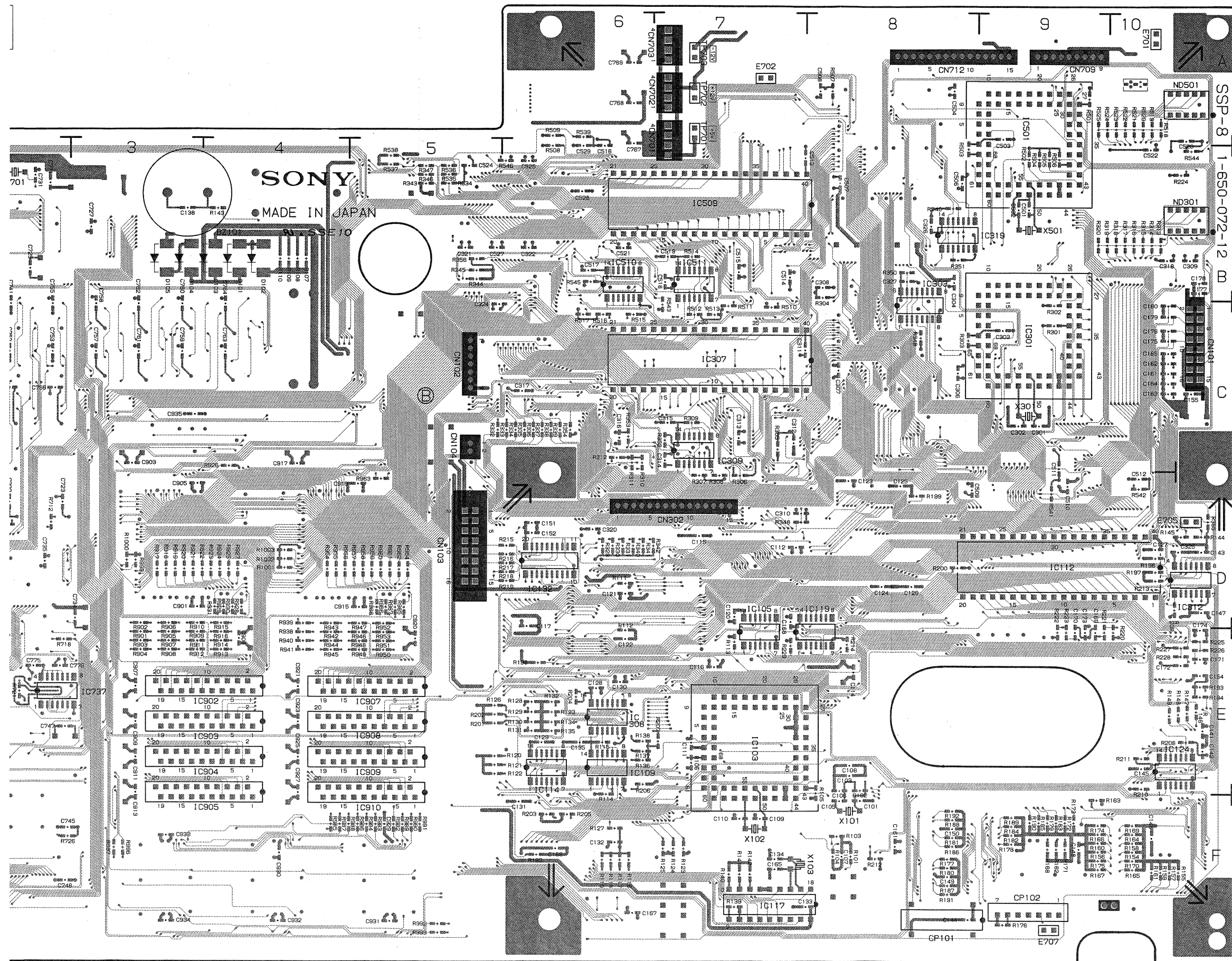


1-650-072-12 B SIDE

B Side is the same as Solder Side.

4 - 5 (b)

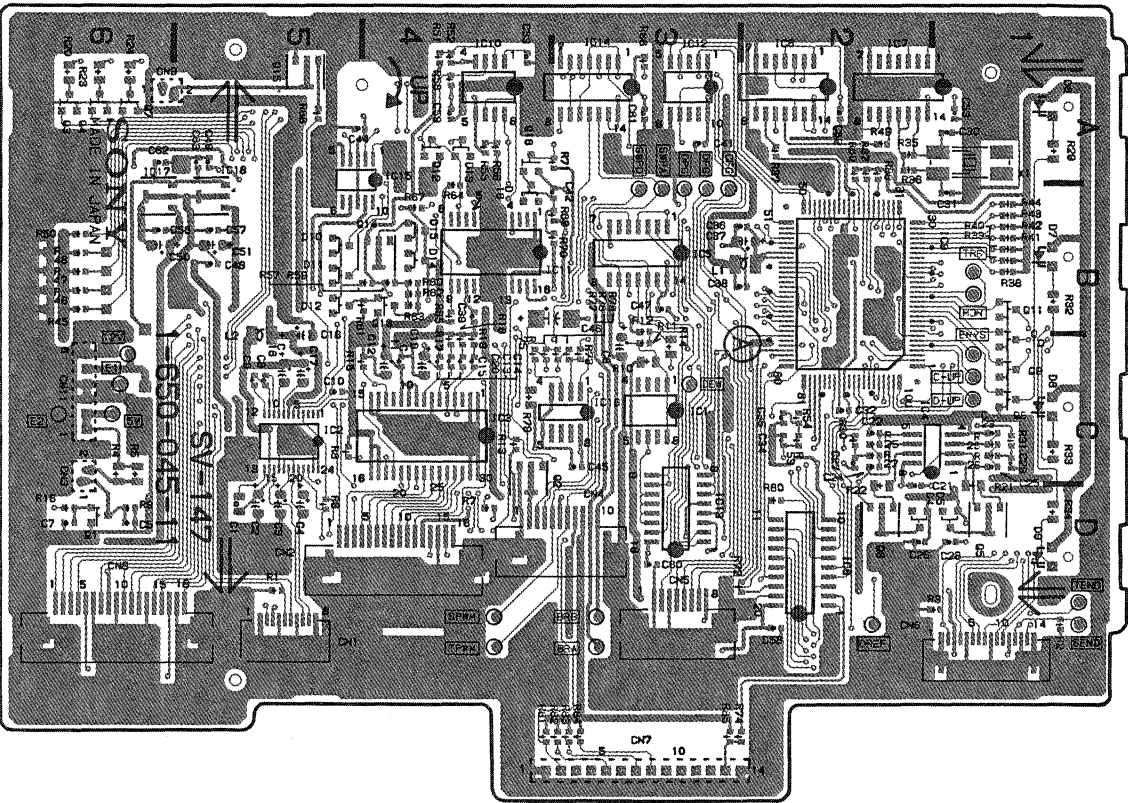




|       |      |       |       |       |      |
|-------|------|-------|-------|-------|------|
| IC101 | C-10 | IC121 | F-6   | IC716 | E-1  |
| IC102 | C-5  | IC122 | E-10  | IC717 | C-2  |
| IC103 | D-5  | IC123 | E-10  | IC718 | C-2  |
| IC104 | C-5  | IC124 | E-10  | IC719 | F-2  |
| IC302 | D-7  | IC125 | F-10  | IC720 | C-2  |
| IC303 | B-1  | IC126 | F-9   | IC721 | C-2  |
| IC501 | F-1  | IC127 | F-8   | IC722 | C-2  |
| IC701 | B-7  | IC128 | F-8   | IC723 | B-2  |
| IC702 | A-7  | IC129 | D-6   | IC724 | C-3  |
| IC703 | A-6  | IC131 | E-10  | IC725 | B-3  |
| IC704 | F-1  | IC132 | *D-6  | IC726 | C-4  |
| IC706 | B-1  | IC133 | F-8   | IC727 | B-3  |
| IC707 | B-1  | IC134 | F-6   | IC728 | C-3  |
| IC708 | F-1  | IC135 | E-9   | IC729 | B-3  |
| IC709 | A-9  | IC136 | E-10  | IC730 | C-4  |
| IC710 | B-1  | IC301 | C-9   | IC731 | B-4  |
| IC711 | E-1  | IC302 | B-8   | IC735 | B-1  |
| IC712 | A-8  | IC303 | *B-8  | IC736 | B-1  |
|       |      | IC304 | D-8   | IC737 | *E-3 |
| CP101 | F-8  | IC305 | C-8   | IC738 | E-2  |
| CP102 | F-9  | IC306 | C-7   | IC739 | E-2  |
| CP701 | D-2  | IC307 | C-7   | IC740 | E-1  |
| CP702 | D-3  | IC308 | *E-6  | IC901 | D-3  |
|       |      | IC309 | *C-7  | IC902 | E-4  |
| D101  | *B-4 | IC310 | C-7   | IC903 | E-4  |
| D102  | *B-4 | IC311 | C-6   | IC904 | E-4  |
| D103  | *B-4 | IC312 | *D-10 | IC905 | E-4  |
| D104  | *B-3 | IC313 | C-6   | IC906 | D-4  |
| D105  | *B-3 | IC314 | B-10  | IC907 | E-5  |
| D106  | E-9  | IC316 | D-7   | IC908 | E-5  |
| D107  | E-9  | IC317 | C-5   | IC909 | E-5  |
| D108  | E-9  | IC318 | B-6   | IC910 | E-5  |
| D109  | E-8  | IC319 | *B-9  | IC911 | F-4  |
| D701  | D-1  | IC501 | A-9   | IC912 | F-4  |
| D702  | D-1  | IC502 | A-8   | IC913 | F-3  |
| D703  | C-1  | IC503 | B-10  | IC914 | C-4  |
| D704  | C-1  | IC504 | B-8   |       |      |
| D705  | *D-3 | IC505 | C-9   | L701  | B-1  |
|       |      | IC506 | C-10  | L702  | C-1  |
| E701  | A-10 | IC507 | B-8   | L703  | C-1  |
| E702  | A-7  | IC508 | B-7   | L704  | B-1  |
| E705  | D-10 | IC509 | B-7   | L705  | F-1  |
| E707  | F-9  | IC510 | *B-6  | L706  | B-3  |
|       |      | IC511 | *B-7  |       |      |
| IC101 | E-8  | IC512 | B-7   | ND301 | B-10 |
| IC102 | F-8  | IC513 | B-10  | ND501 | A-10 |
| IC103 | E-8  | IC514 | B-6   |       |      |
| IC104 | D-7  | IC515 | B-10  | S102  | F-7  |
| IC105 | *D-7 | IC517 | B-5   |       |      |
| IC106 | E-7  | IC701 | C-1   | TP701 | A-7  |
| IC107 | D-7  | IC702 | C-1   | TP702 | A-7  |
| IC108 | E-5  | IC703 | C-2   | TP703 | A-7  |
| IC109 | *E-6 | IC704 | D-2   |       |      |
| IC110 | D-8  | IC705 | *B-3  |       |      |
| IC111 | D-8  | IC706 | C-2   | T701  | D-1  |
| IC112 | D-9  | IC707 | B-2   | X101  | F-8  |
| IC114 | *E-6 | IC708 | B-2   | X102  | F-7  |
| IC115 | F-6  | IC709 | B-1   | X103  | F-8  |
| IC116 | E-6  | IC711 | D-2   | X301  | C-9  |
| IC117 | F-7  | IC712 | E-2   | X501  | B-9  |
| IC118 | D-10 | IC713 | E-2   | X701  | B-2  |
| IC119 | *D-8 | IC714 | D-1   |       |      |
| IC120 | D-10 | IC715 | E-1   |       |      |

\* ;B(Soldering)Side mount

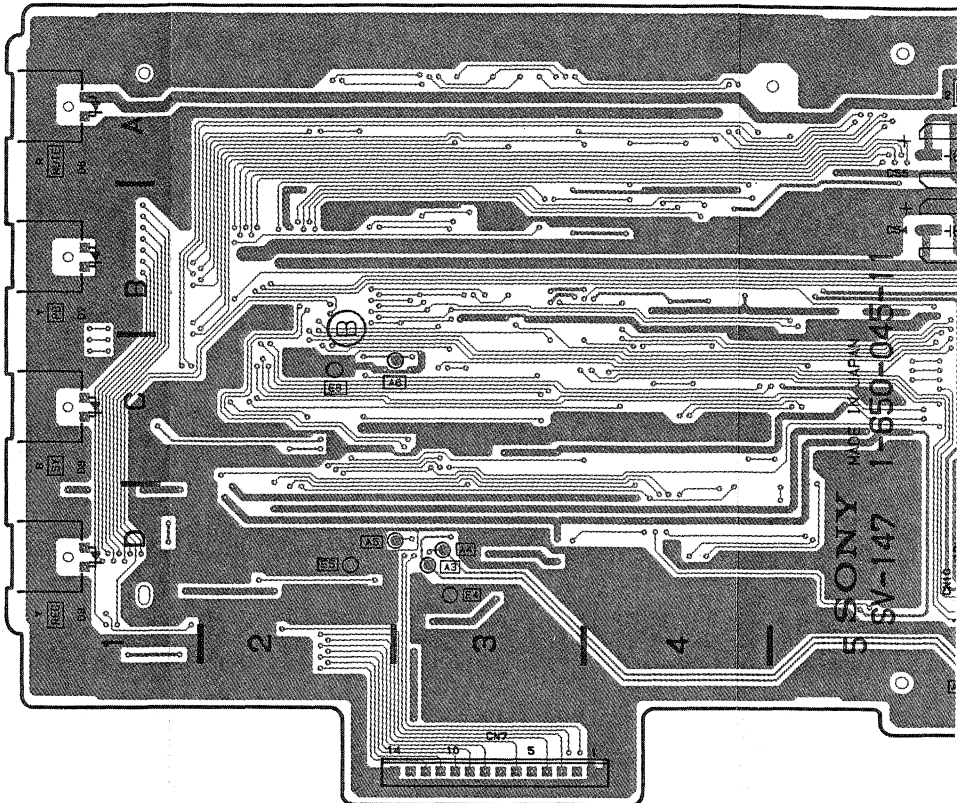
SV-147 BOARD  
A Side



1-650-045-11 A SIDE

A Side is the same as Component Side.

SV-147 BOARD  
B Side



1-650-045-11 B SIDE

B Side is the same as Solder Side.

DUS-736 BOARD



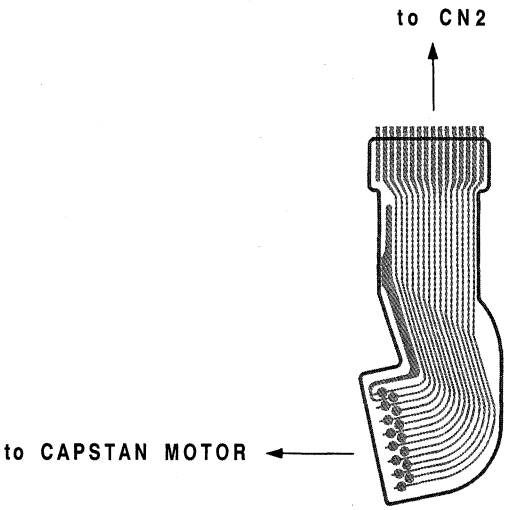
1-651-135-11 A SIDE

SV-147 BOARD  
1-650-045-11

|      |      |     |      |
|------|------|-----|------|
| CN1  | D-5  | Q1  | D-6  |
| CN2  | D-5  | Q2  | C-3  |
| CN3  | C-6  | Q3  | A-6  |
| CN4  | D-3  | Q4  | A-6  |
| CN5  | D-3  | Q5  | D-1  |
| CN6  | D-2  | Q6  | D-2  |
| CN7  | D-3  | Q7  | A-6  |
| CN8  | D-6  | Q8  | C-1  |
| CN10 | *D-6 | Q9  | C-1  |
| CN11 | C-6  | Q10 | C-1  |
|      |      | Q11 | B-1  |
| D1   | *A-6 | Q12 | A-4  |
| D2   | *A-6 | Q13 | B-4  |
| D3   | *A-6 | Q14 | B-4  |
| D4   | D-2  | Q15 | A-5  |
| D5   | A-1  | Q16 | A-4  |
| D6   | B-1  | S1  | *B-6 |
| D7   | C-1  |     |      |
| D8   | D-1  | X1  | A-1  |
| D9   | B-5  |     |      |
| D10  | B-5  |     |      |
| D11  | B-5  |     |      |
| D12  | A-4  |     |      |
| D13  | B-4  |     |      |
| D14  | B-4  |     |      |
| D15  | B-4  |     |      |
| D16  | B-4  |     |      |
| IC1  | C-3  |     |      |
| IC2  | C-5  |     |      |
| IC3  | C-4  |     |      |
| IC4  | C-2  |     |      |
| IC5  | B-3  |     |      |
| IC6  | A-2  |     |      |
| IC7  | A-2  |     |      |
| IC8  | D-2  |     |      |
| IC9  | B-1  |     |      |
| IC10 | A-4  |     |      |
| IC11 | B-3  |     |      |
| IC12 | A-3  |     |      |
| IC13 | D-3  |     |      |
| IC14 | A-3  |     |      |
| IC15 | A-4  |     |      |
| IC16 | C-3  |     |      |
| IC17 | A-6  |     |      |
| IC18 | A-5  |     |      |

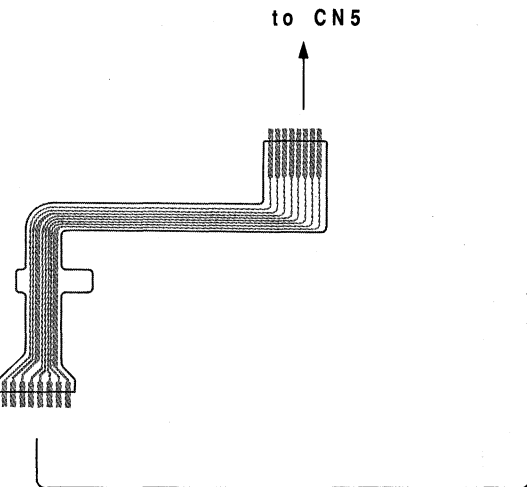
\*:B(Soldering)Side mount

CAPSTAN FLEXIBLE BOARD



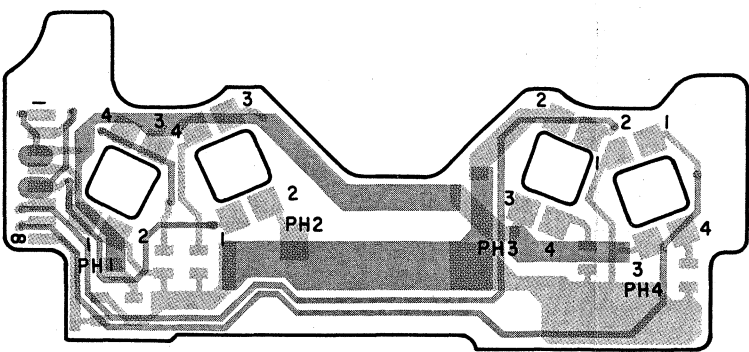
1-648-979-11

REEL FG.DEW FLEXIBLE BOARD



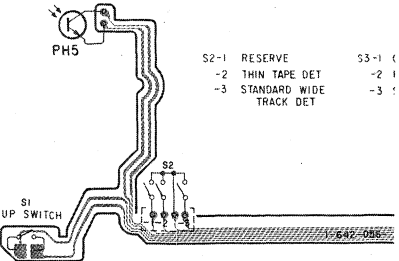
1-648-978-11

REEL FG BOARD



1-648-983-11 SOLDER SIDE PATTERN  
1-648-983-11 COMPONENT SIDE PATTERN

RECOGNI END FLEXIBLE BOARD



1-642-056-12

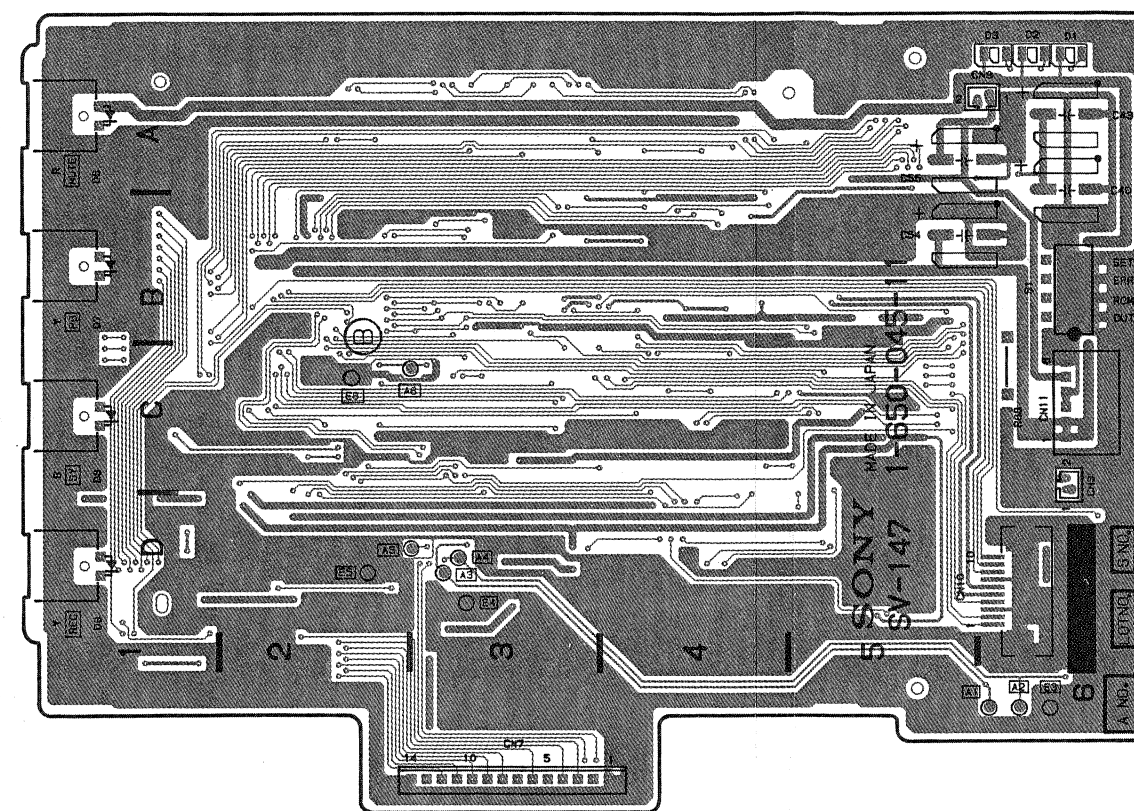


SV-147 BOARD  
B Side

SV-147 BOARD  
1-650-045-11

|      |     |     |     |
|------|-----|-----|-----|
| CN1  | D-5 | Q1  | D-6 |
| CN2  | D-5 | Q2  | C-3 |
| CN3  | C-6 | Q3  | A-6 |
| CN4  | D-3 | Q4  | A-6 |
| CN5  | D-3 | Q5  | D-1 |
| CN6  | D-2 | Q6  | D-2 |
| CN7  | D-3 | Q7  | A-6 |
| CN8  | D-6 | Q8  | C-1 |
| CN10 | D-6 | Q9  | C-1 |
| CN11 | C-6 | Q10 | C-1 |
|      |     | Q11 | B-1 |
| D1   | A-6 | Q12 | A-4 |
| D2   | A-6 | Q13 | B-4 |
| D3   | A-6 | Q14 | B-4 |
| D4   | D-2 | Q15 | A-5 |
| D5   | D-1 | Q16 | A-4 |
| D6   | A-1 |     |     |
| D7   | B-1 | S1  | B-6 |
| D8   | C-1 |     |     |
| D9   | D-1 | X1  | A-1 |
| D10  | B-5 |     |     |
| D11  | B-5 |     |     |
| D12  | B-5 |     |     |
| D13  | A-4 |     |     |
| D14  | B-4 |     |     |
| D15  | B-4 |     |     |
| D16  | B-4 |     |     |
| IC1  | C-3 |     |     |
| IC2  | C-5 |     |     |
| IC3  | C-4 |     |     |
| IC4  | C-2 |     |     |
| IC5  | B-3 |     |     |
| IC6  | A-2 |     |     |
| IC7  | A-2 |     |     |
| IC8  | D-2 |     |     |
| IC9  | B-1 |     |     |
| IC10 | A-4 |     |     |
| IC11 | B-3 |     |     |
| IC12 | A-3 |     |     |
| IC13 | D-3 |     |     |
| IC14 | A-3 |     |     |
| IC15 | A-4 |     |     |
| IC16 | C-3 |     |     |
| IC17 | A-6 |     |     |
| IC18 | A-5 |     |     |

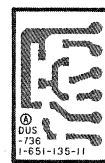
\*:B(Soldering)Side mount



1-650-045-11 B SIDE

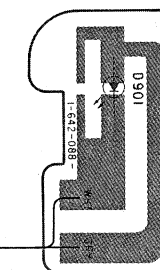
B Side is the same as Solder Side.

DUS-736 BOARD



1-651-135-11 A SIDE

GOMA BOARD



1-642-088-11

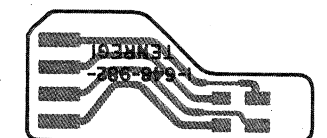
to CN3

TENREGI MOTOR ENCODER FLEXIBLE BOARD

to CN10



TENREGI BOARD



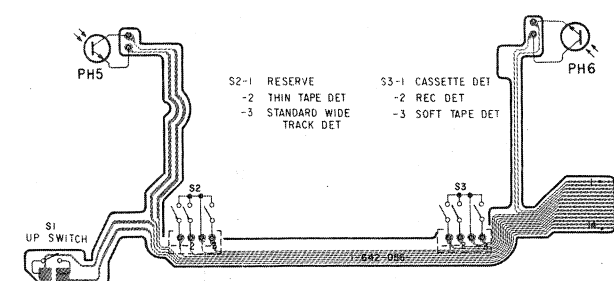
1-648-982-11

to DRIVE MOTOR

RECOGNI END FLEXIBLE BOARD

to ROTARY ENCODER

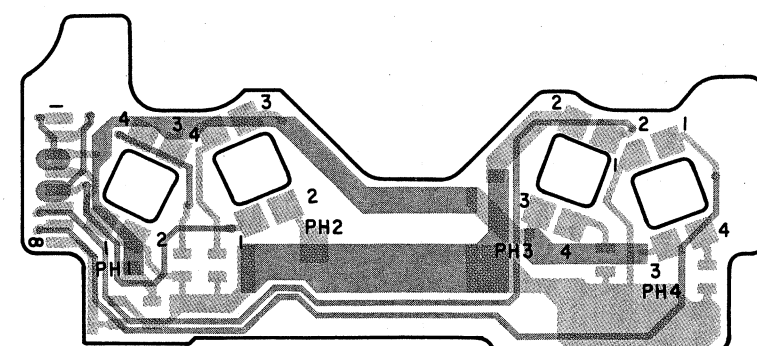
1-648-976-11



1-642-056-12

to CN6

REEL FG BOARD

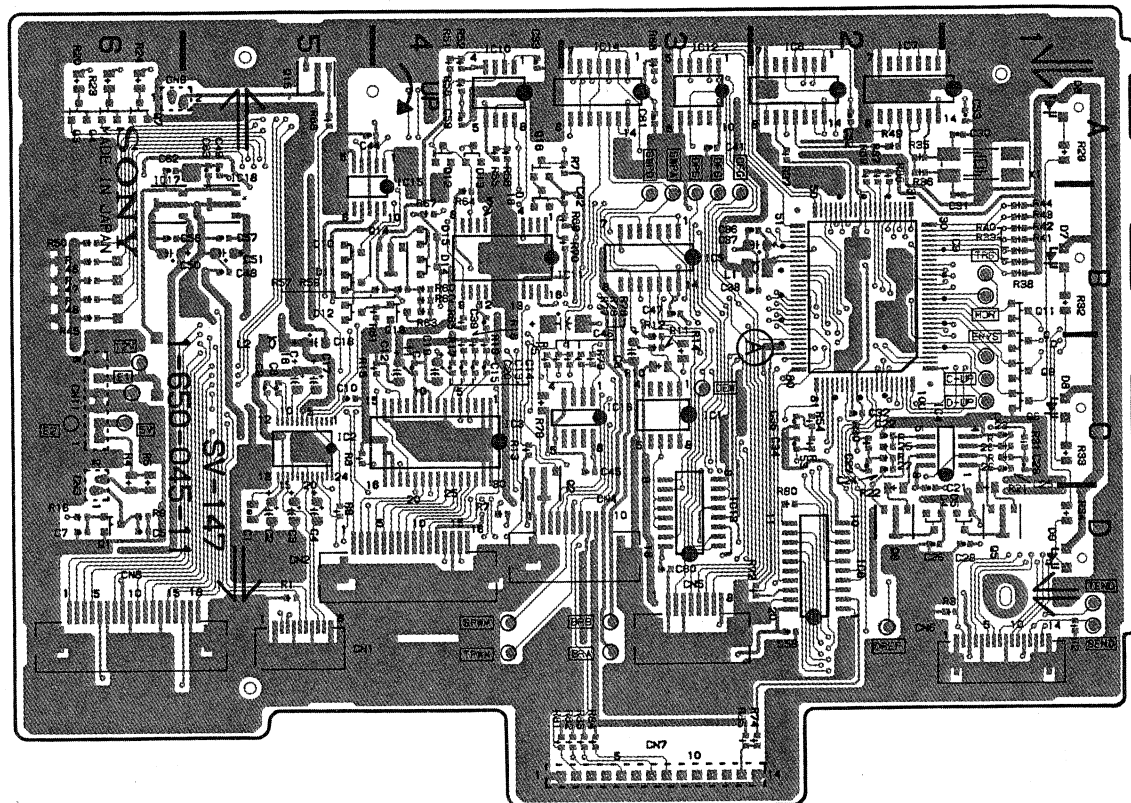


1-648-983-11 SOLDER SIDE PATTERN

1-648-983-11 COMPONENT SIDE PATTERN

SV-147 BOARD  
A Side

Serial No. J ;10001 to 10110  
UC;20001 to 20055  
EK;50001 to 50235



1-650-045-11 A SIDE

A Side is the same as Component Side.

DUS-736 BOARD

Serial No. J ;10001 to 10110  
UC;20001 to 20055  
EK;50001 to 50235



1-651-135-11 A SIDE

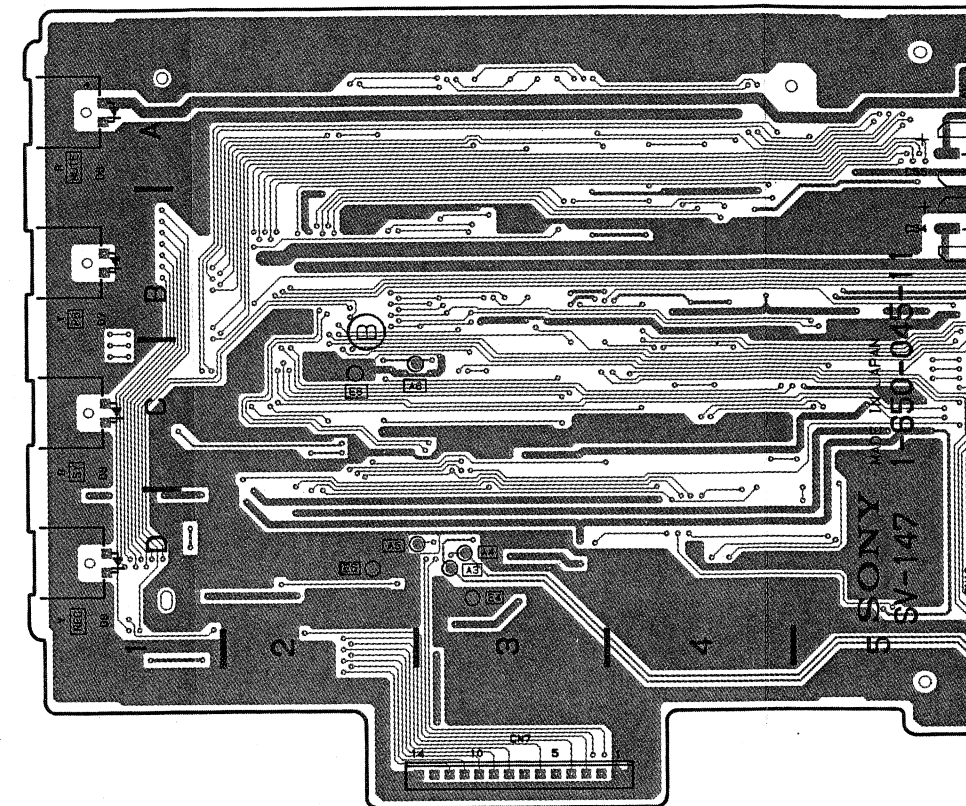
SV-147 BOARD  
1-650-045-11

|      |     |     |     |
|------|-----|-----|-----|
| CN1  | D-5 | Q1  | D-6 |
| CN2  | D-5 | Q2  | C-3 |
| CN3  | C-6 | Q3  | A-6 |
| CN4  | D-3 | Q4  | A-6 |
| CN5  | D-3 | Q5  | D-1 |
| CN6  | D-2 | Q6  | D-2 |
| CN7  | D-3 | Q7  | A-6 |
| CN8  | D-6 | Q8  | C-1 |
| CN10 | D-6 | Q9  | C-1 |
| CN11 | C-6 | Q10 | C-1 |
|      |     | Q11 | B-1 |
| D1   | A-6 | Q12 | A-4 |
| D2   | A-6 | Q13 | B-4 |
| D3   | A-6 | Q14 | B-4 |
| D4   | D-2 | Q15 | A-5 |
| D5   | D-1 | Q16 | A-4 |
| D6   | A-1 |     |     |
| D7   | B-1 | S1  | B-6 |
| D8   | C-1 |     |     |
| D9   | D-1 | X1  | A-1 |
| D10  | B-5 |     |     |
| D11  | B-5 |     |     |
| D12  | B-5 |     |     |
| D13  | A-4 |     |     |
| D14  | B-4 |     |     |
| D15  | B-4 |     |     |
| D16  | B-4 |     |     |
| IC1  | C-3 |     |     |
| IC2  | C-5 |     |     |
| IC3  | C-4 |     |     |
| IC4  | C-2 |     |     |
| IC5  | B-3 |     |     |
| IC6  | A-2 |     |     |
| IC7  | A-2 |     |     |
| IC8  | D-2 |     |     |
| IC9  | B-1 |     |     |
| IC10 | A-4 |     |     |
| IC11 | B-3 |     |     |
| IC12 | A-3 |     |     |
| IC13 | D-3 |     |     |
| IC14 | A-3 |     |     |
| IC15 | A-4 |     |     |
| IC16 | C-3 |     |     |
| IC17 | A-6 |     |     |
| IC18 | A-5 |     |     |

\*;B(Soldering)Side mount

SV-147 BOARD  
B Side

Serial No. J ;10001 to 10110  
UC;20001 to 20055  
EK;50001 to 50235

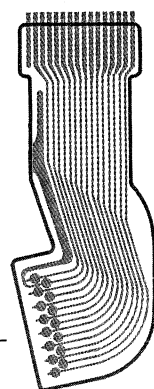


1-650-045-11 B SIDE

B Side is the same as Solder Side.

CAPSTAN FLEXIBLE BOARD

to CN2

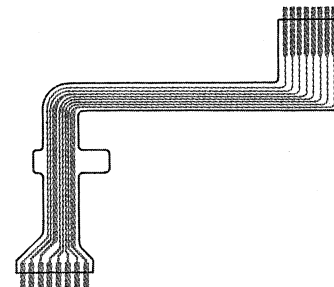


1-648-979-11

to CAPSTAN MOTOR

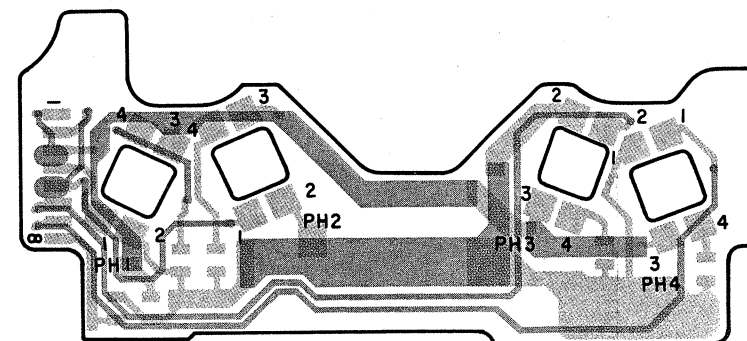
REEL FG.DEW FLEXIBLE BOARD

to CN5



1-648-978-11

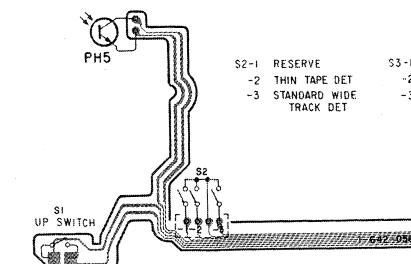
REEL FG BOARD



1-648-983-11 SOLDER SIDE PATTERN

1-648-983-11 COMPONENT SIDE PATTERN

RECOGNI END FLEXIBLE BO



1-642-056-12

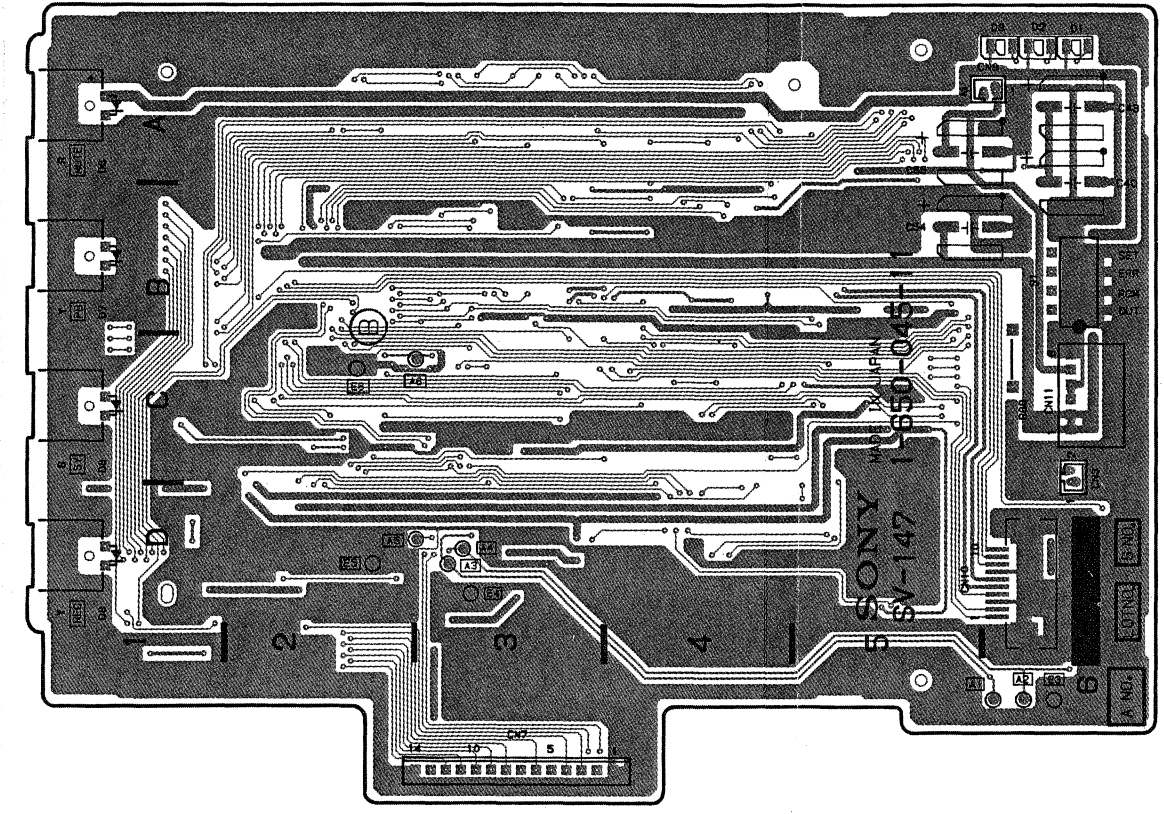
SV-147 BOARD  
B Side

Serial No. J ;10001 to 10110  
UC ;20001 to 20055  
EK ;50001 to 50235

SV-147 BOARD  
1-650-045-11

|      |     |     |     |
|------|-----|-----|-----|
| CN1  | D-5 | Q1  | D-6 |
| CN2  | D-5 | Q2  | C-3 |
| CN3  | C-6 | Q3  | A-6 |
| CN4  | D-3 | Q4  | A-6 |
| CN5  | D-3 | Q5  | D-1 |
| CN6  | D-2 | Q6  | D-2 |
| CN7  | D-3 | Q7  | A-6 |
| CN8  | D-6 | Q8  | C-1 |
| CN10 | D-6 | Q9  | C-1 |
| CN11 | C-6 | Q10 | C-1 |
|      |     | Q11 | B-1 |
| D1   | A-6 | Q12 | A-4 |
| D2   | A-6 | Q13 | B-4 |
| D3   | A-6 | Q14 | B-4 |
| D4   | D-2 | Q15 | A-5 |
| D5   | D-1 | Q16 | A-4 |
| D6   | A-1 |     |     |
| D7   | B-1 | S1  | B-6 |
| D8   | C-1 |     |     |
| D9   | D-1 | X1  | A-1 |
| D10  | B-5 |     |     |
| D11  | B-5 |     |     |
| D12  | B-5 |     |     |
| D13  | A-4 |     |     |
| D14  | B-4 |     |     |
| D15  | B-4 |     |     |
| D16  | B-4 |     |     |
| IC1  | C-3 |     |     |
| IC2  | C-5 |     |     |
| IC3  | C-4 |     |     |
| IC4  | C-2 |     |     |
| IC5  | B-3 |     |     |
| IC6  | A-2 |     |     |
| IC7  | A-2 |     |     |
| IC8  | D-2 |     |     |
| IC9  | B-1 |     |     |
| IC10 | A-4 |     |     |
| IC11 | B-3 |     |     |
| IC12 | A-3 |     |     |
| IC13 | D-3 |     |     |
| IC14 | A-3 |     |     |
| IC15 | A-4 |     |     |
| IC16 | C-3 |     |     |
| IC17 | A-6 |     |     |
| IC18 | A-5 |     |     |

\*:B(Soldering)Side mount



1-650-045-11 B SIDE

B Side is the same as Solder Side.

-736 BOARD

al No. J ;10001 to 10110  
UC ;20001 to 20055  
EK ;50001 to 50235

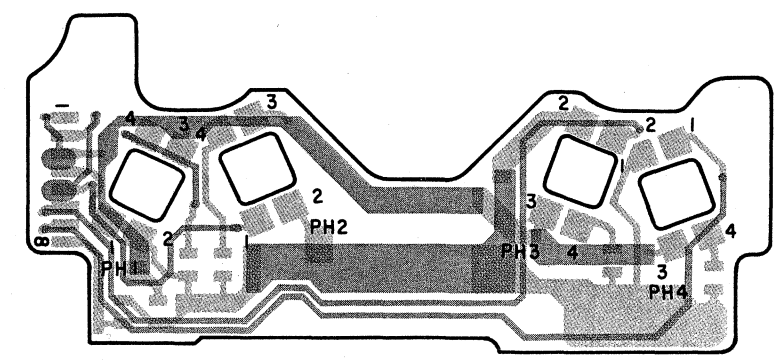


135-11 A SIDE

LE BOARD

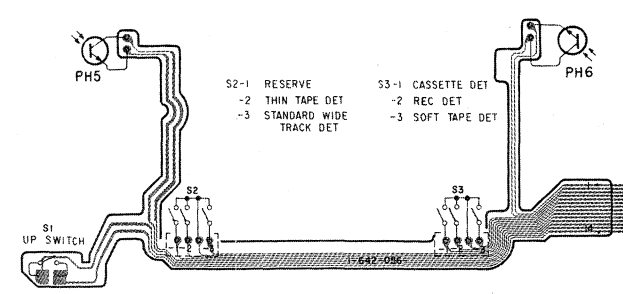
CN5

REEL FG BOARD



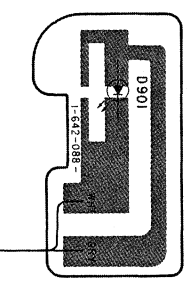
1-648-983-11 SOLDER SIDE PATTERN  
1-648-983-11 COMPONENT SIDE PATTERN

RECOGNI END FLEXIBLE BOARD



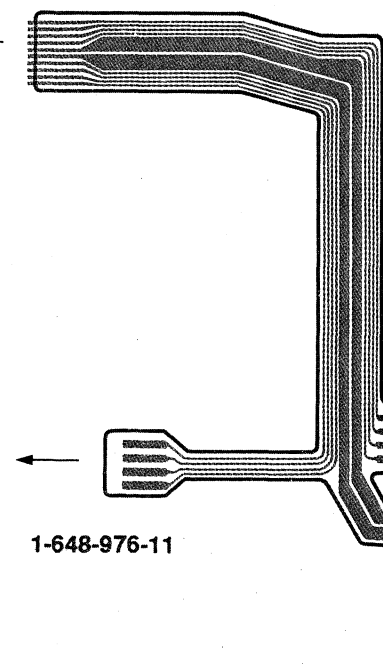
1-642-056-12

GOMA BOARD



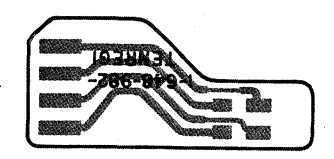
1-642-088-11

TENREGI MOTOR ENCODER FLEXIBLE BOARD



1-648-976-11

TENREGI BOARD

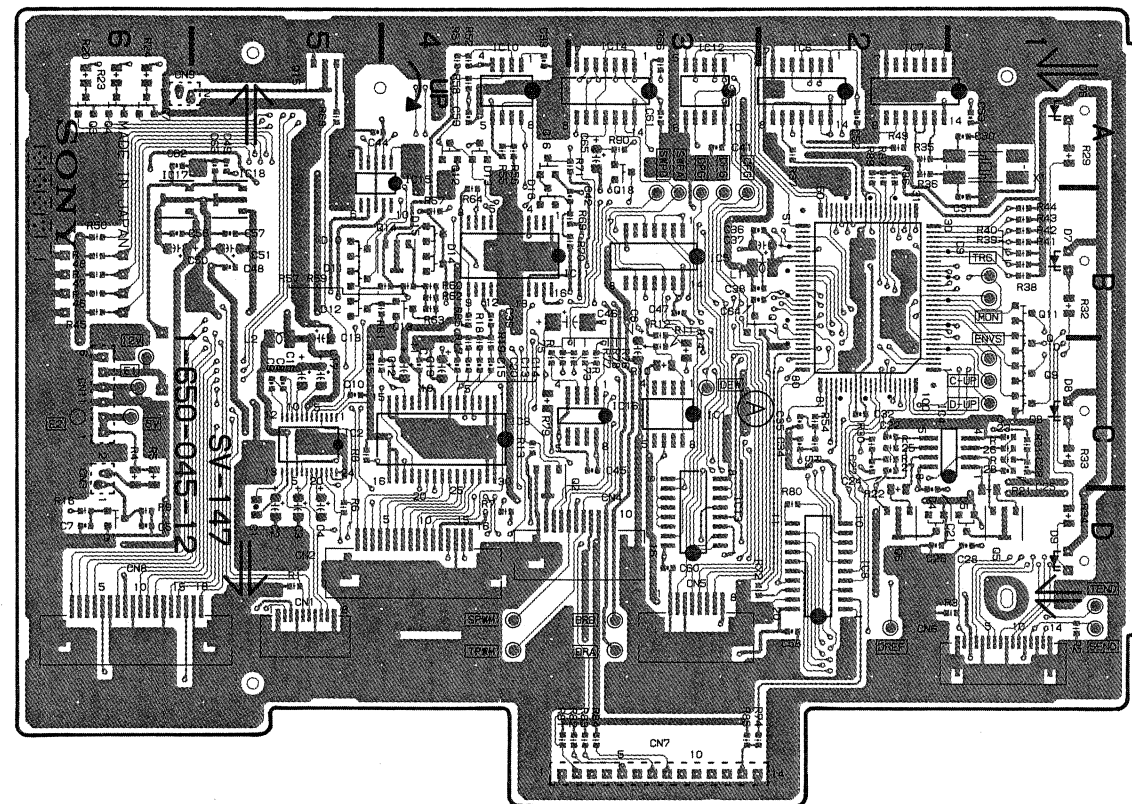


1-648-982-11



SV-147 BOARD  
A Side

Serial No. J ;10111 and higher  
UC;20056 and higher  
EK;50236 and higher



1-650-045-12 A SIDE

A Side is the same as Component Side.

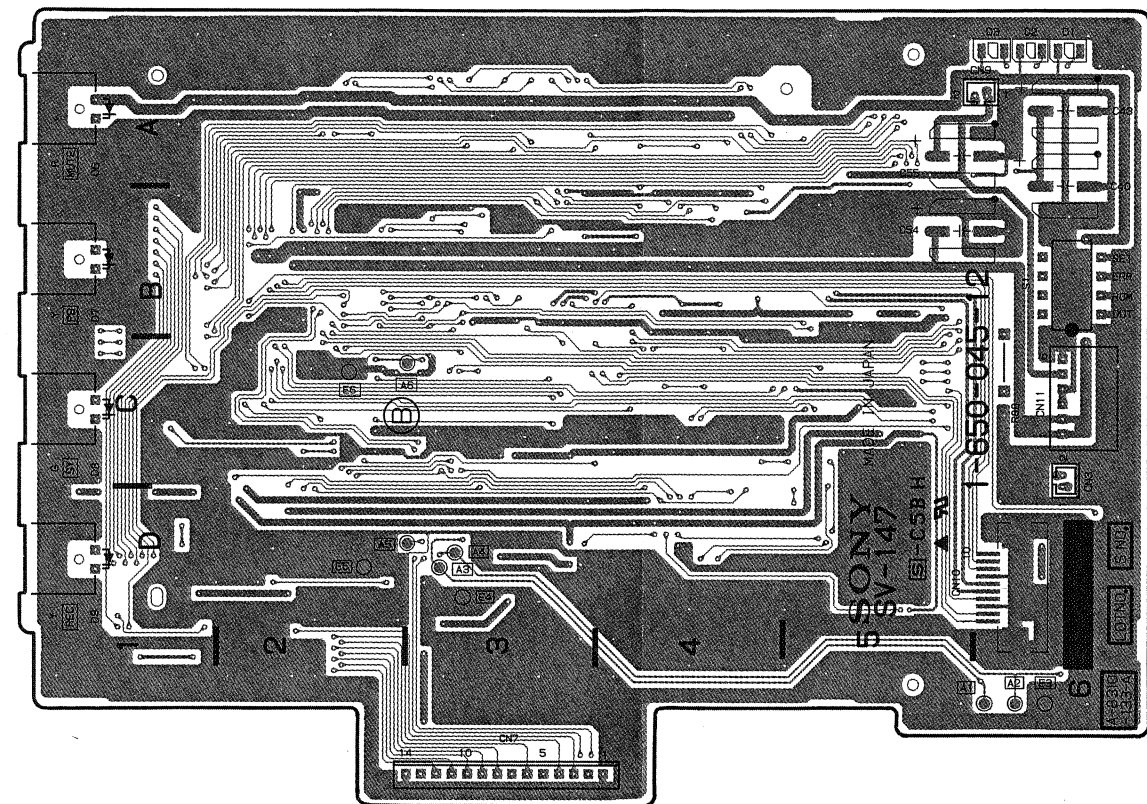
SV-147 BOARD  
1-650-045-12

|      |     |     |     |
|------|-----|-----|-----|
| CN1  | D-5 | L1  | B-3 |
| CN2  | D-5 | L2  | B-5 |
| CN3  | C-6 |     |     |
| CN4  | D-3 | Q1  | D-6 |
| CN5  | D-3 | Q2  | C-3 |
| CN6  | D-2 | Q3  | A-6 |
| CN7  | D-3 | Q4  | A-6 |
| CN8  | D-6 | Q5  | D-1 |
| CN10 | D-6 | Q6  | D-2 |
| CN11 | C-6 | Q7  | A-6 |
|      |     | Q8  | C-1 |
| D1   | A-6 | Q9  | C-1 |
| D2   | A-6 | Q10 | C-1 |
| D3   | A-6 | Q11 | B-1 |
| D4   | D-2 | Q12 | A-4 |
| D5   | D-1 | Q13 | B-4 |
| D6   | A-1 | Q14 | B-4 |
| D7   | B-1 | Q15 | A-5 |
| D8   | C-1 | Q16 | A-4 |
| D9   | D-1 | Q17 | B-2 |
| D10  | B-5 | Q18 | B-3 |
| D11  | B-5 |     |     |
| D12  | B-5 | S1  | B-6 |
| D13  | A-4 |     |     |
| D14  | B-4 | X1  | A-1 |
| D15  | B-4 |     |     |
| D16  | B-4 |     |     |
| IC1  | C-3 |     |     |
| IC2  | C-5 |     |     |
| IC3  | C-4 |     |     |
| IC4  | C-2 |     |     |
| IC5  | B-3 |     |     |
| IC6  | A-2 |     |     |
| IC7  | A-2 |     |     |
| IC8  | D-2 |     |     |
| IC9  | B-1 |     |     |
| IC10 | A-4 |     |     |
| IC11 | B-3 |     |     |
| IC12 | A-3 |     |     |
| IC13 | D-3 |     |     |
| IC14 | A-3 |     |     |
| IC15 | A-4 |     |     |
| IC16 | C-3 |     |     |
| IC17 | A-6 |     |     |
| IC18 | A-5 |     |     |

\*;B(Soldering)Side mount

SV-147 BOARD  
B Side

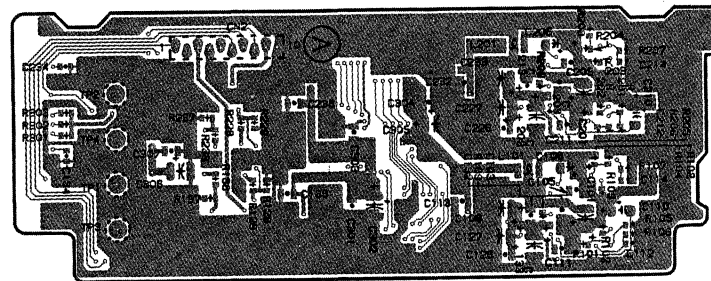
Serial No. J ;10111 and higher  
UC;20056 and higher  
EK;50236 and higher



1-650-045-12 B SIDE

B Side is the same as Solder Side.

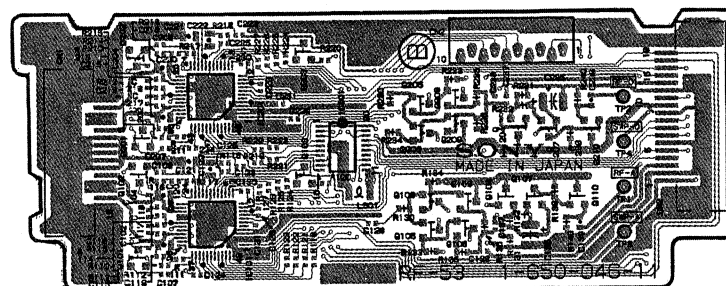
RF-53 BOARD  
A Side



1-650-046-11 A SIDE

A Side is the same as Component Side.

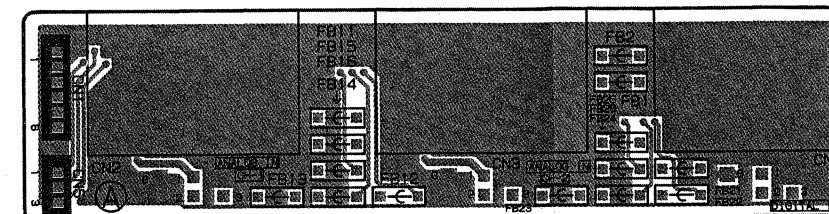
RF-53 BOARD  
B Side



1-650-046-11 B SIDE

B Side is the same as Solder Side.

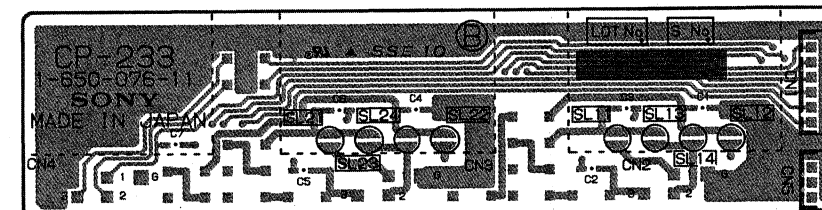
CP-233A/233B BOARD  
A Side



1-650-076-11 A SIDE

A Side is the same as Component Side.

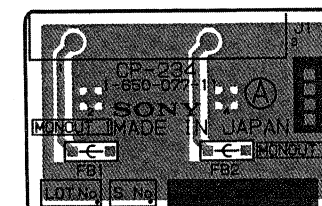
CP-233A/233B BOARD  
B Side



1-650-076-11 B SIDE

B Side is the same as Solder Side.

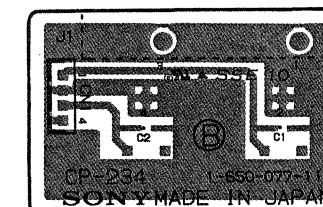
CP-234 BOARD  
A Side



1-650-077-11 A SIDE

A Side is the same as Component Side.

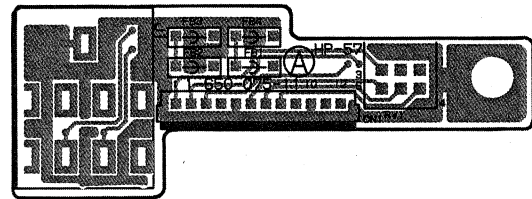
CP-234 BOARD  
B Side



1-650-077-11 B SIDE

B Side is the same as Solder Side.

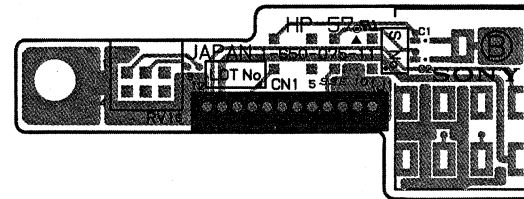
HP-57 BOARD  
A Side



1-650-075-11 A SIDE

A Side is the same as Component Side.

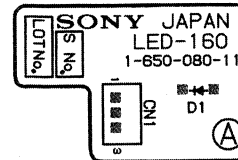
HP-57 BOARD  
B Side



1-650-075-11 B SIDE

B Side is the same as Solder Side.

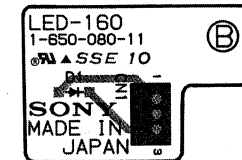
LED-160 BOARD  
A Side



1-650-080-11 A SIDE

A Side is the same as Component Side.

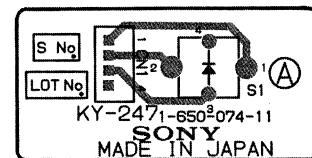
LED-160 BOARD  
B Side



1-650-080-11 B SIDE

B Side is the same as Solder Side.

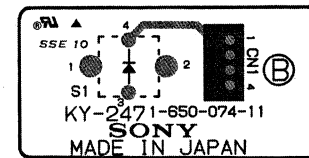
KY-247 BOARD  
A Side



1-650-074-11 A SIDE

A Side is the same as Component Side.

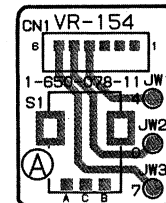
KY-247 BOARD  
B Side



1-650-074-11 B SIDE

B Side is the same as Solder Side.

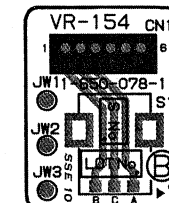
VR-154 BOARD  
A Side



1-650-078-11 A SIDE

A Side is the same as Component Side.

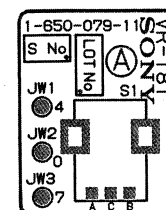
VR-154 BOARD  
B Side



1-650-078-11 B SIDE

B Side is the same as Solder Side.

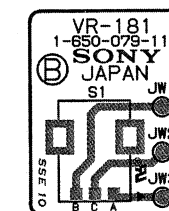
VR-181 BOARD  
A Side



1-650-079-11 A SIDE

A Side is the same as Component Side.

VR-181 BOARD  
B Side

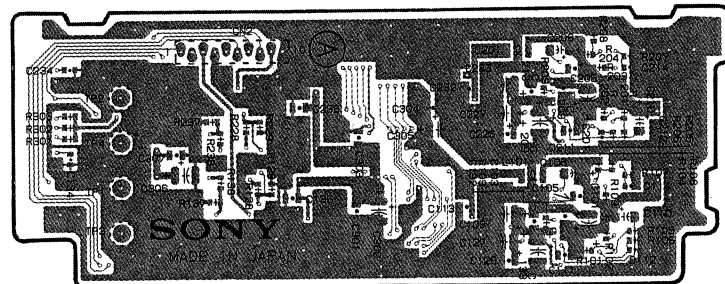


1-650-079-11 B SIDE

B Side is the same as Solder Side.



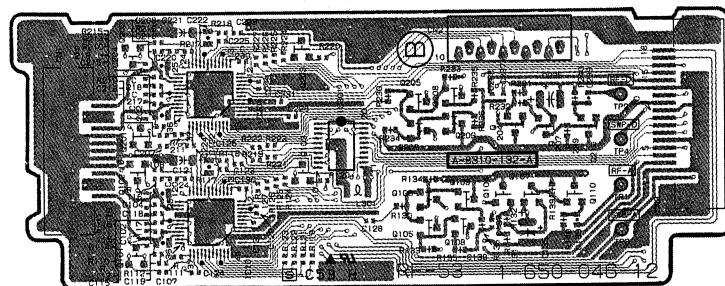
RF-53 BOARD  
A Side



1-650-046-11,12 A SIDE

A Side is the same as Component Side.

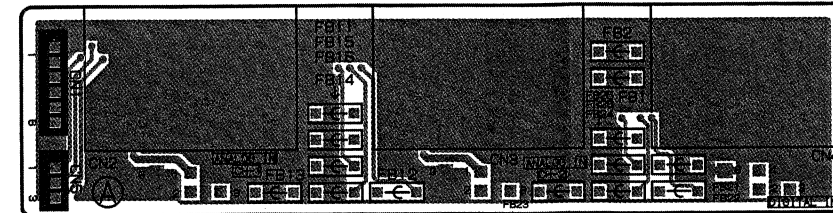
RF-53 BOARD  
B Side



1-650-046-11,12 B SIDE

B Side is the same as Solder Side.

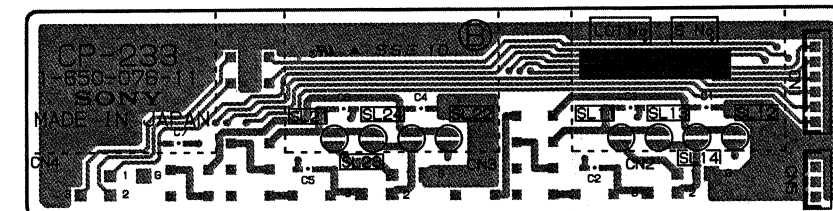
CP-233A/233B BOARD  
A Side



1-650-076-11 A SIDE

A Side is the same as Component Side.

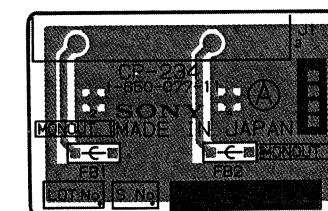
CP-233A/233B BOARD  
B Side



1-650-076-11 B SIDE

B Side is the same as Solder Side.

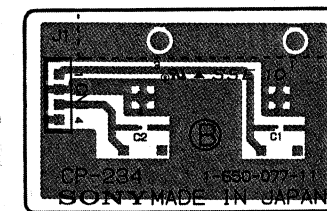
CP-234 BOARD  
A Side



1-650-077-11 A SIDE

A Side is the same as Component Side.

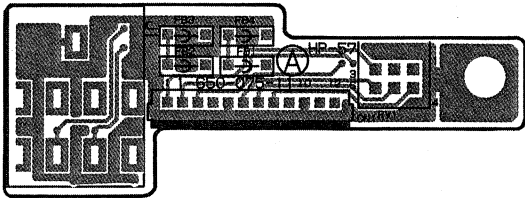
CP-234 BOARD  
B Side



1-650-077-11 B SIDE

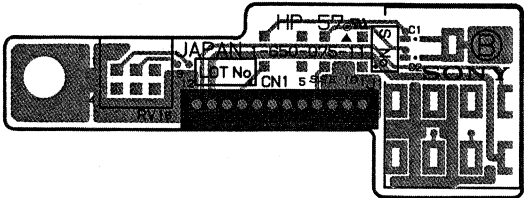
B Side is the same as Solder Side.

HP-57 BOARD  
A Side



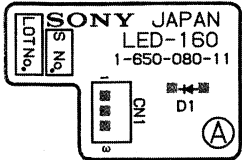
1-650-075-11 A SIDE  
A Side is the same as Component Side.

HP-57 BOARD  
B Side



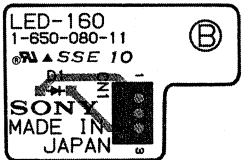
1-650-075-11 B SIDE  
B Side is the same as Solder Side.

LED-160 BOARD  
A Side



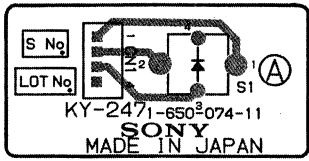
1-650-080-11 A SIDE  
A Side is the same as Component Side.

LED-160 BOARD  
B Side



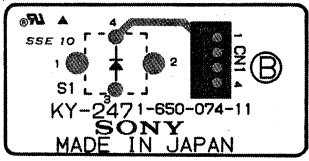
1-650-080-11 B SIDE  
B Side is the same as Solder Side.

KY-247 BOARD  
A Side



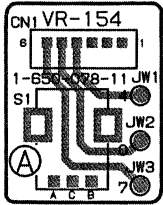
1-650-074-11 A SIDE  
A Side is the same as Component Side.

KY-247 BOARD  
B Side



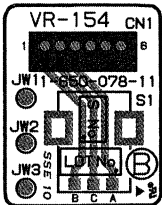
1-650-074-11 B SIDE  
B Side is the same as Solder Side.

VR-154 BOARD  
A Side



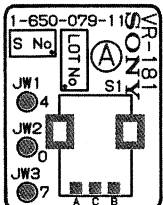
1-650-078-11 A SIDE  
A Side is the same as Component Side.

VR-154 BOARD  
B Side



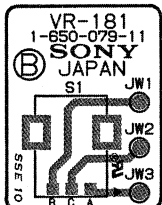
1-650-078-11 B SIDE  
B Side is the same as Solder Side.

VR-181 BOARD  
A Side



1-650-079-11 A SIDE  
A Side is the same as Component Side.

VR-181 BOARD  
B Side



1-650-079-11 B SIDE  
B Side is the same as Solder Side.

# SECTION 5

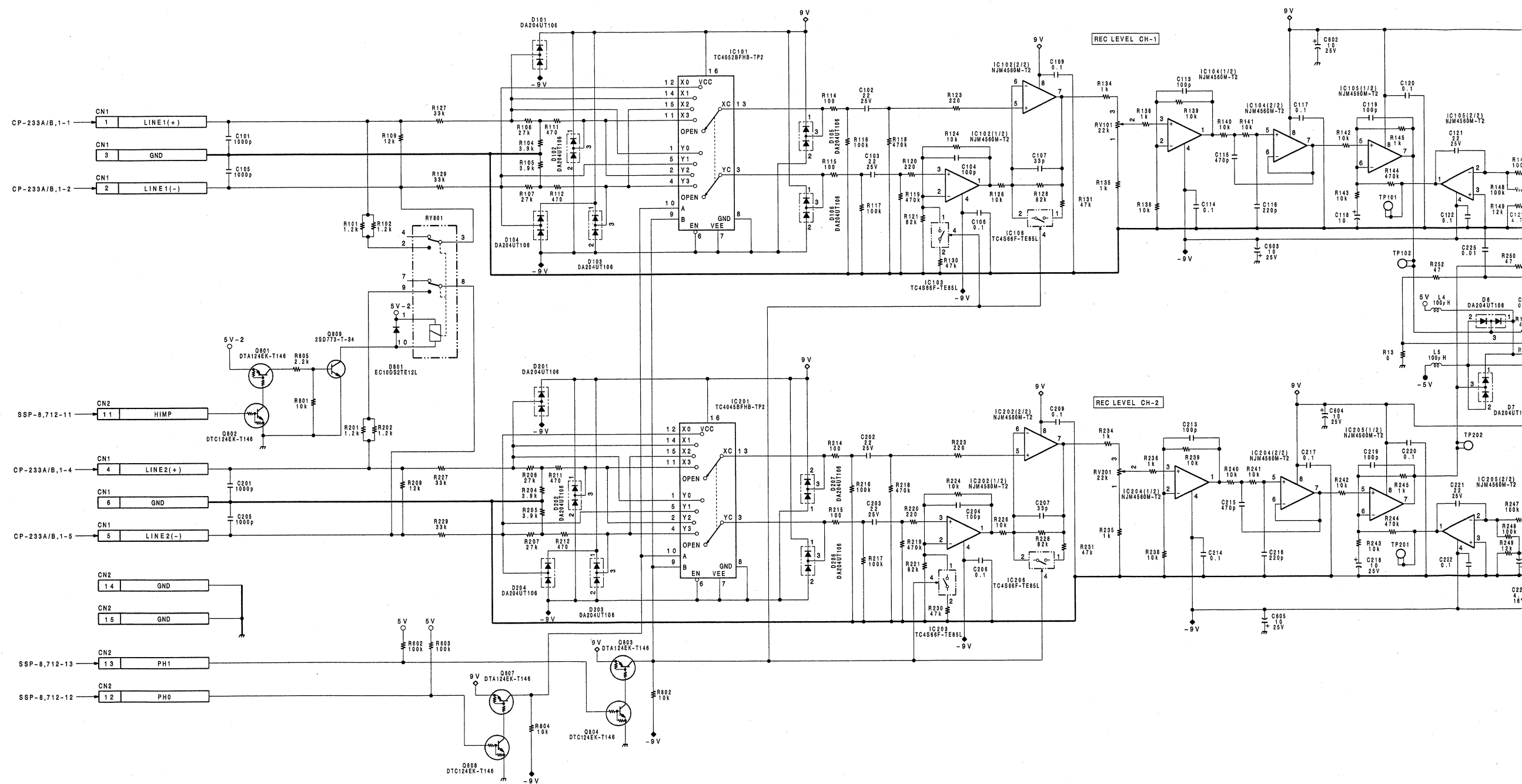
## SCHEMATIC DIAGRAMS

| Board                      | Function   | Page |
|----------------------------|--|------|
| A ADA-31                   | Rec Audio,A/D Converter,PB Audio,D/A Converter ..... | 5-2  |
| R RF-53                    | RF Amplifier.....                                    | 5-12 |
| S SSP-8                    | System Control,Signal Processor .....                | 5-4  |
| SV-147                     | Servo .....  | 5-13 |
| Frame wiring .....         |  | 5-14 |
| OTHERS                     |  |      |
| GOMA .....                 |  | 5-13 |
| RECOGNI END FLEXIBLE ..... |  | 5-13 |
| REEL FG .....              |  | 5-13 |



ADA-31 BOARD (1/2)  
c Audio, A/D Converter  
Audio, D/A Converter

|            |                    |
|------------|--------------------|
| Serial No. | J ;10081 to 10110  |
|            | UC ;20036 to 20055 |
|            | EK ;50156 to 50235 |



5 - 2 ( b )

**A**

**B**

**C**

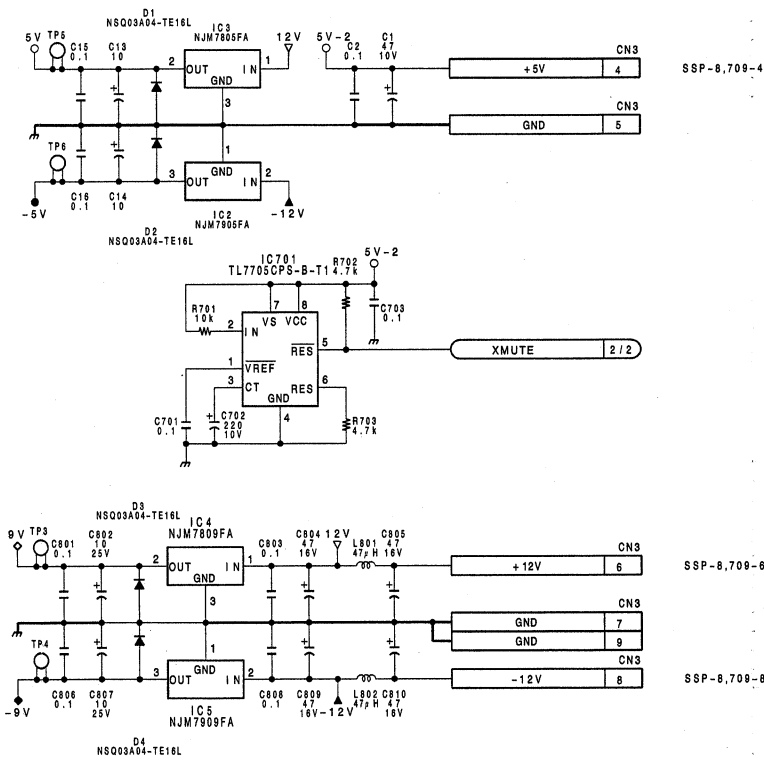
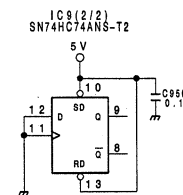
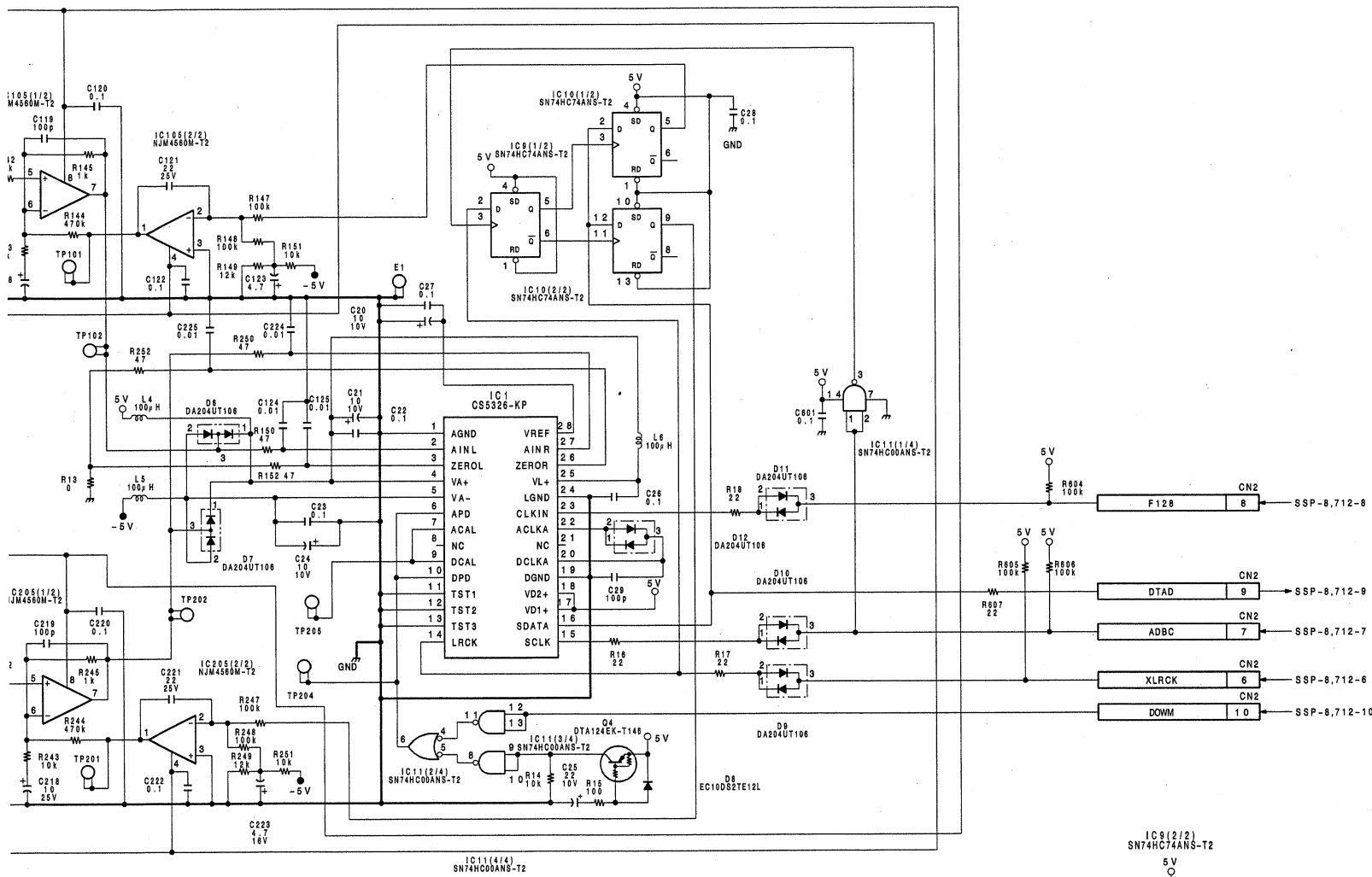
**D**

E

**F**

**G**

H

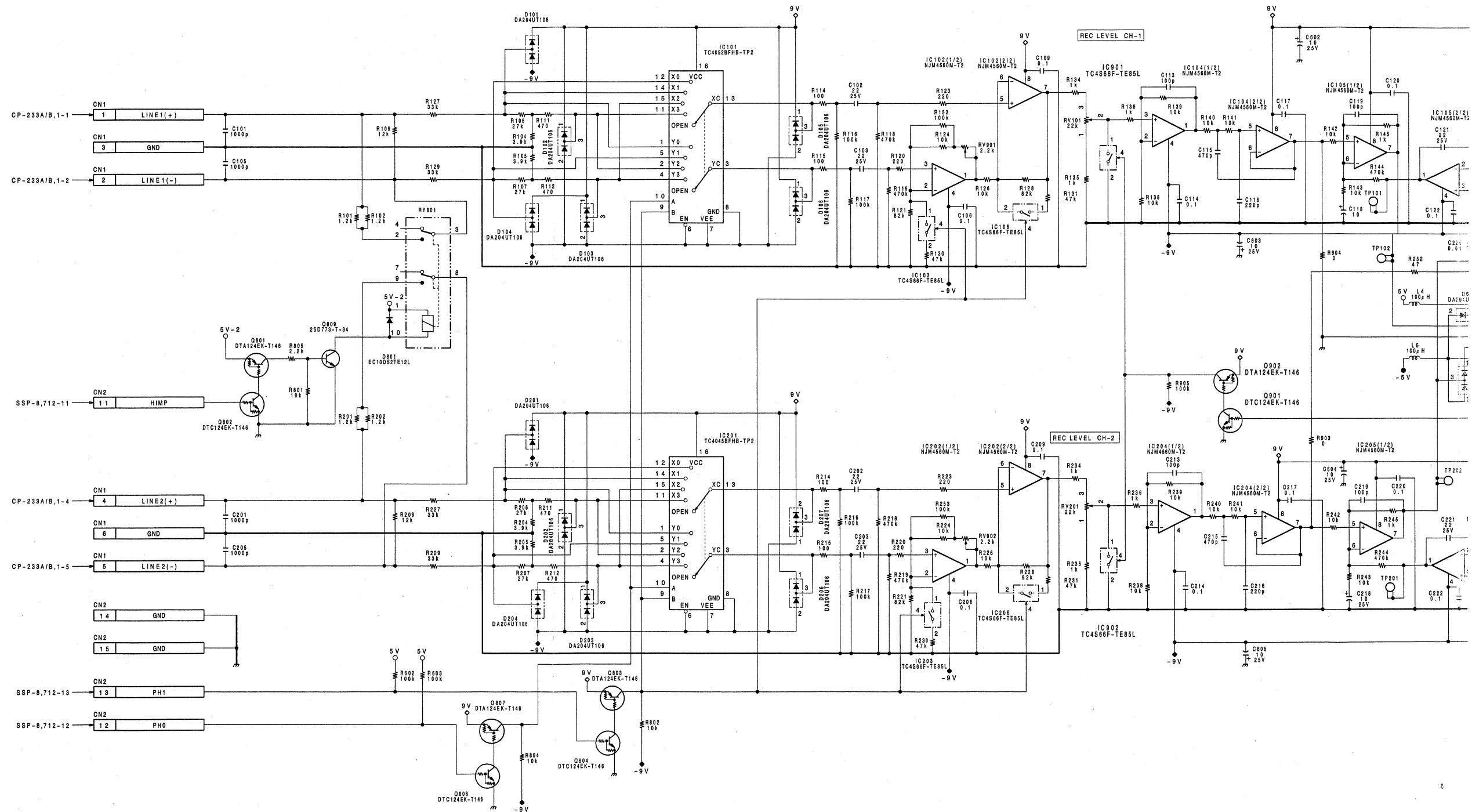


## ADA-31 BOARD (1/2)

BOARD NO.1-650-073-11  
PCM-E7700

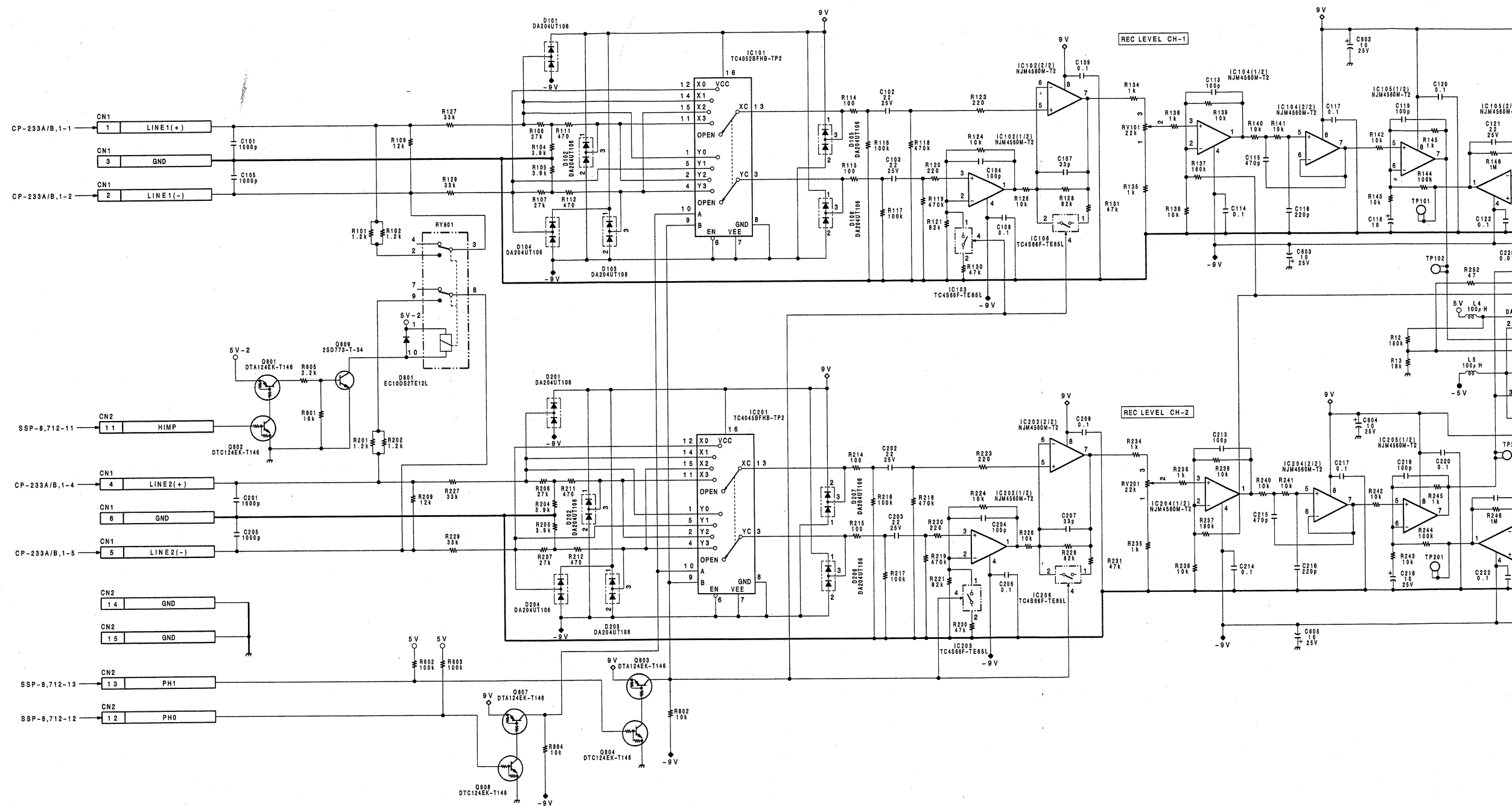
**ADA-31 BOARD (1/2)**  
Rec Audio, A/D Converter  
PB Audio, D/A Converter

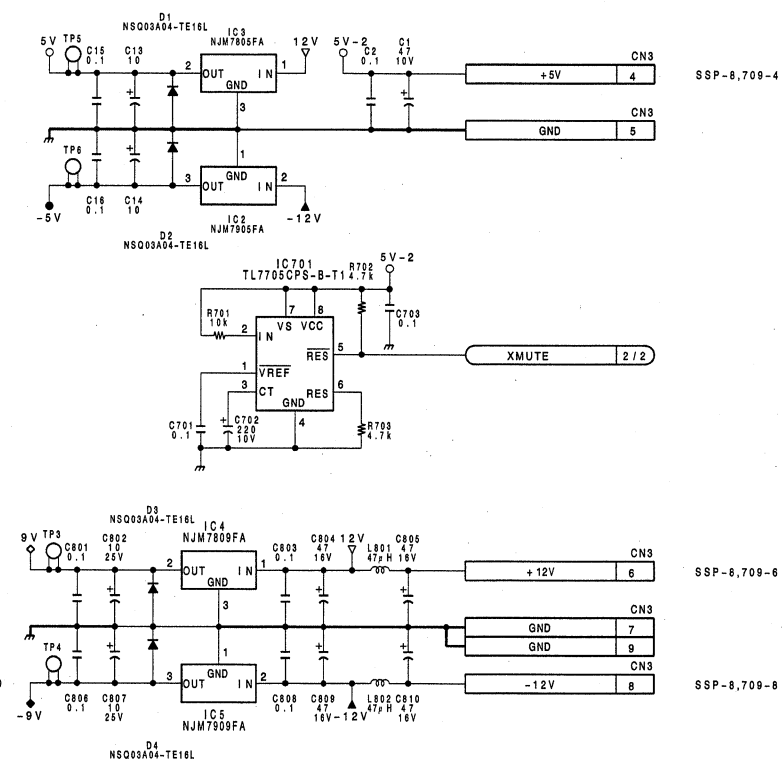
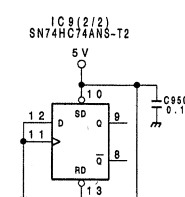
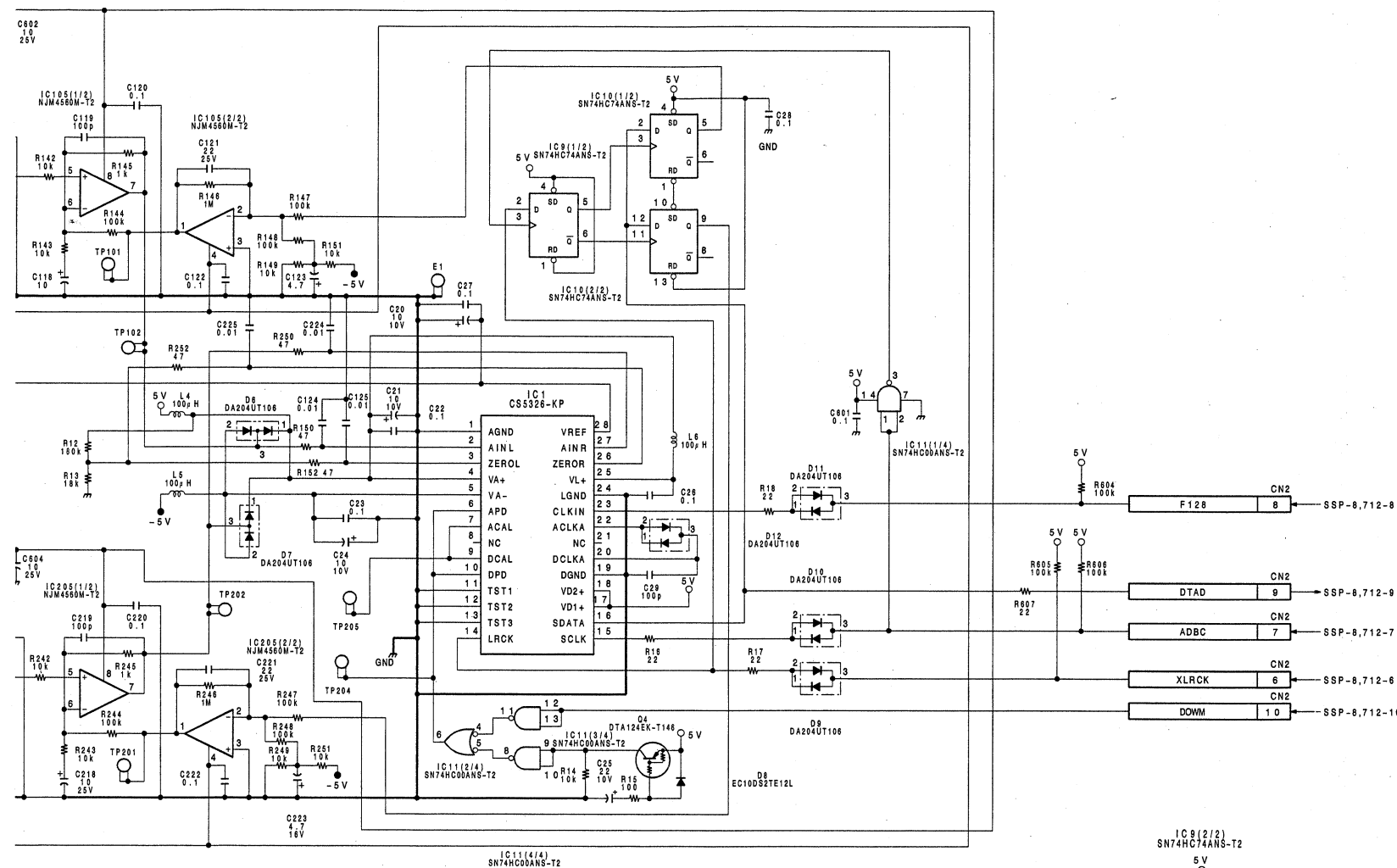
|                                |
|--------------------------------|
| Serial No. J ;10111 and higher |
| UC;20056 and higher            |
| EK;50236 and higher            |



**ADA-31 BOARD (1/2)**  
Rec Audio,A/D Converter  
PB Audio,D/A Converter

Rec Audio, A/D Converter  
PB Audio, D/A Converter

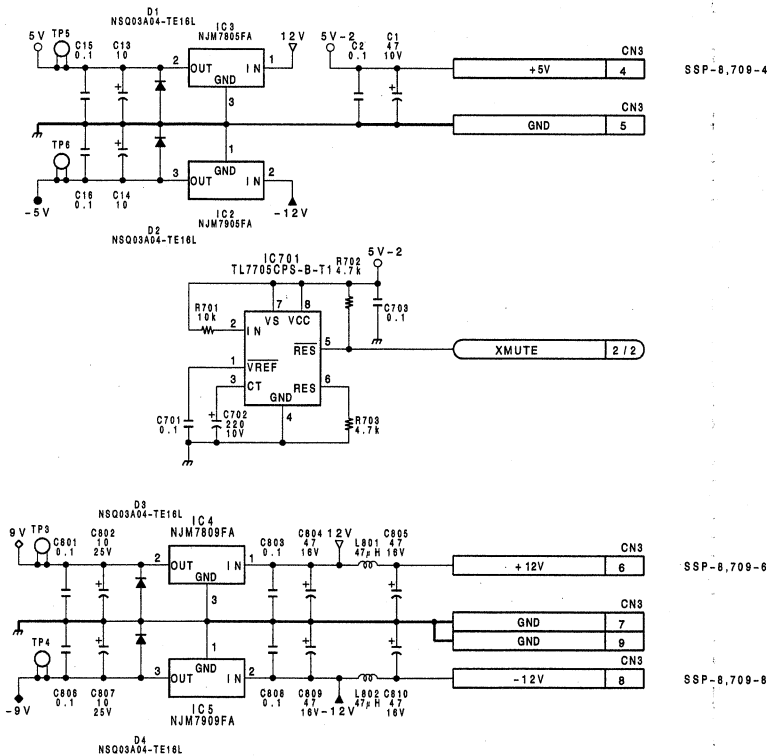
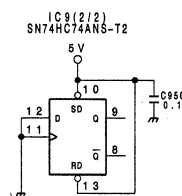
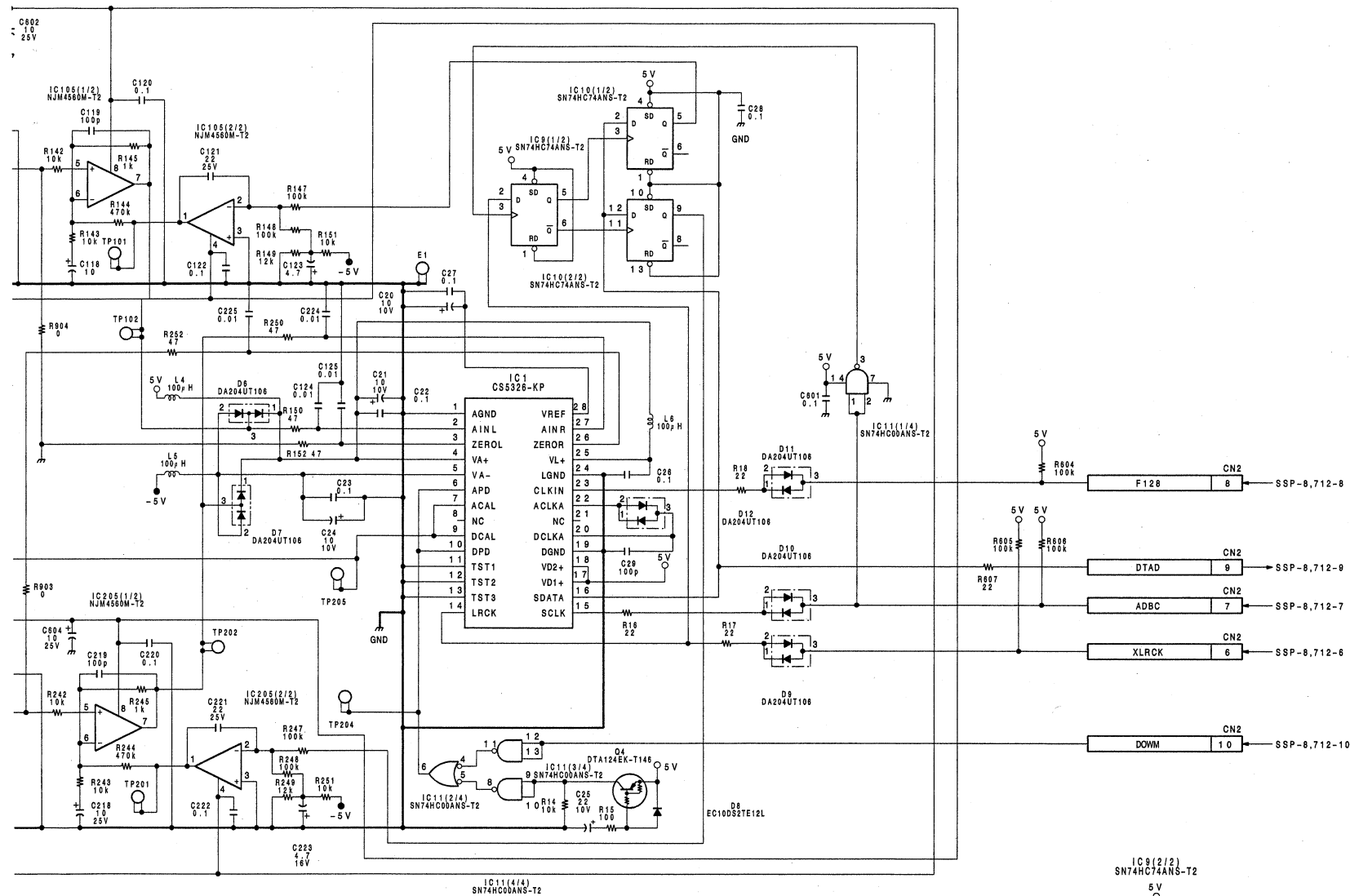




**ADA-31 BOARD ( 1 / 2 )**

BOARD NO.1-650-073-11  
PCM-E7700



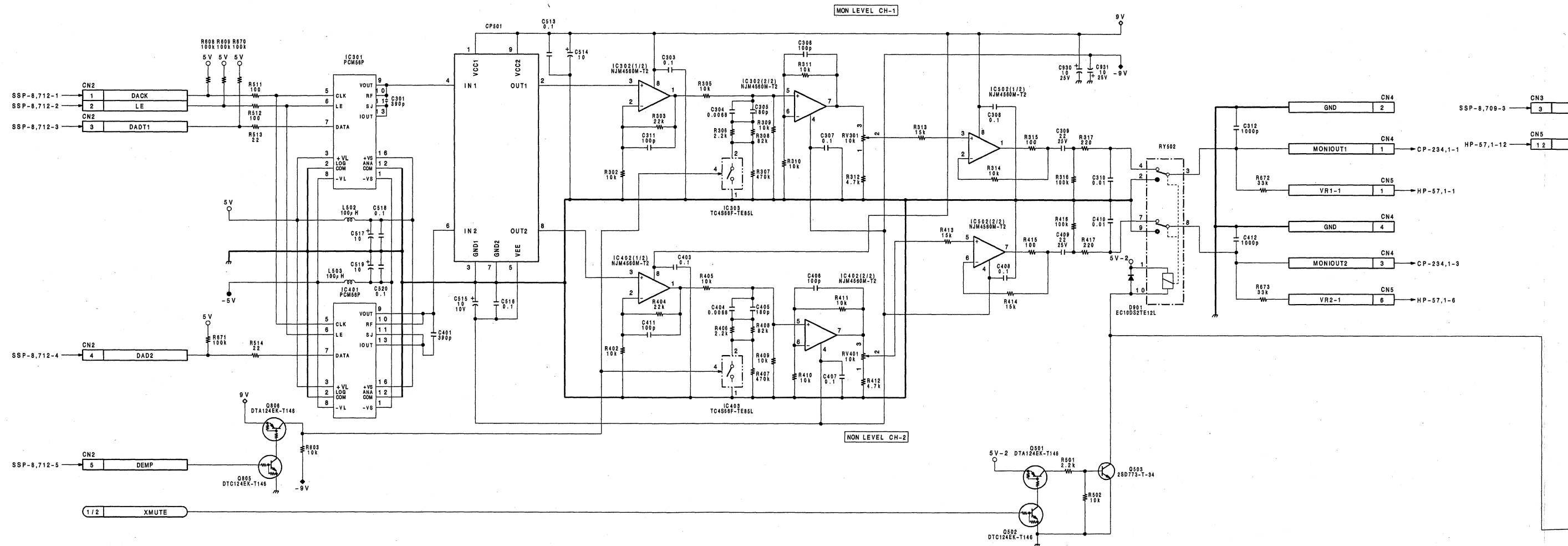


**ADA-31 BOARD ( 1 / 2 )**

BOARD NO.1-650-073-12  
PCM-E7700



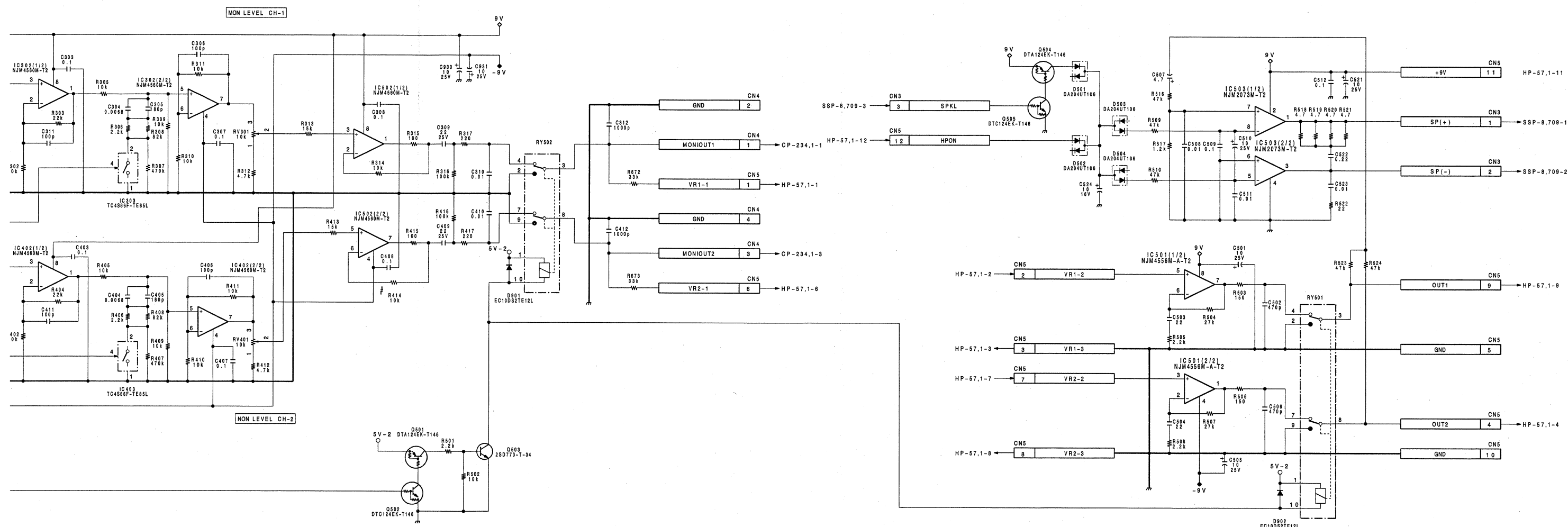
ADA-31 BOARD (2/2)  
Rec Audio, A/D Converter  
PB Audio, D/A Converter





BOARD NO.1-650-073-11  
PCM-E7700



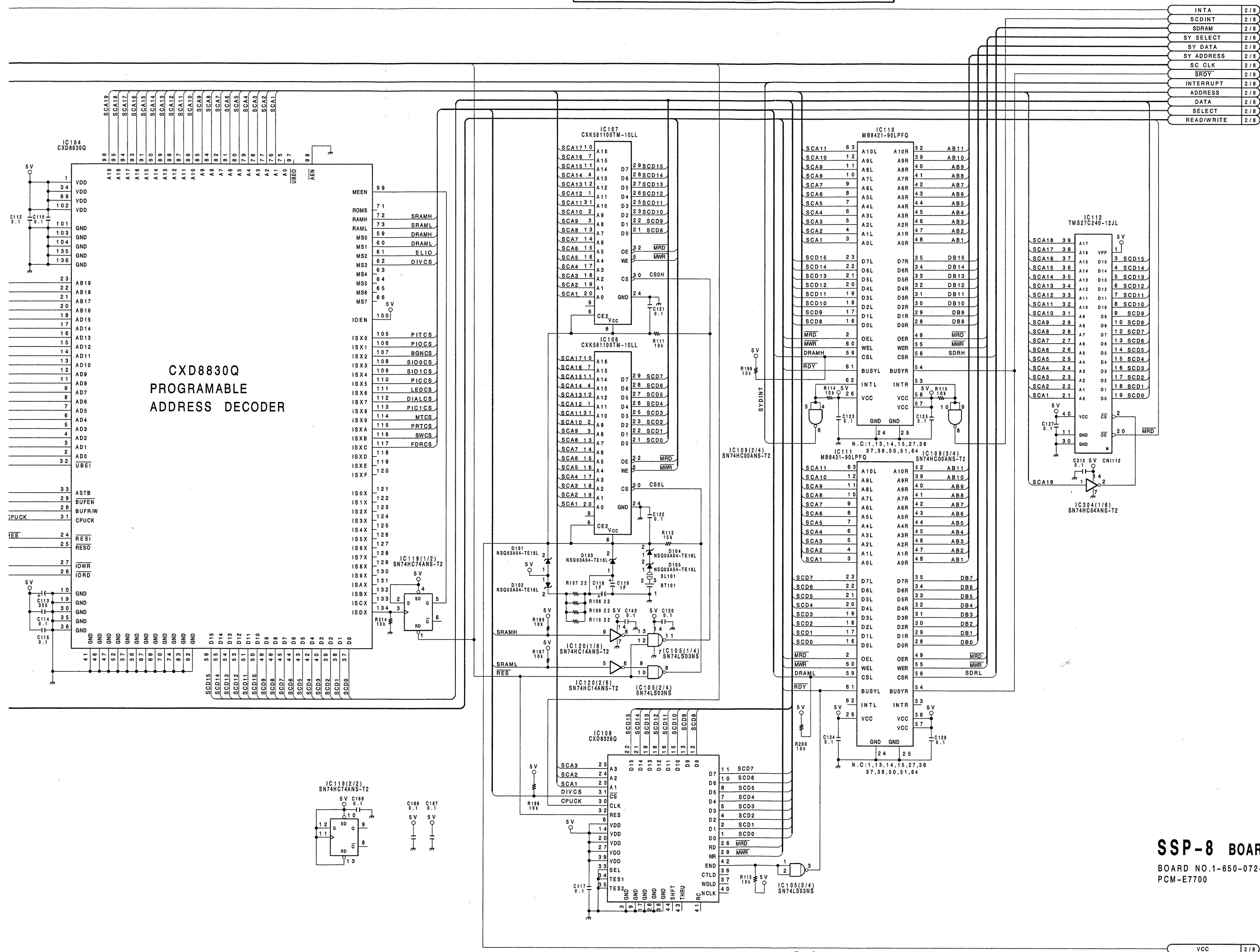


| #:Changed Information |                               |           |
|-----------------------|-------------------------------|-----------|
| Applied Serial No.    | Parts that have been changed. |           |
| J :10111 and higher   | C515                          | 10V → 50V |
| UC :20056 and higher  | R414                          | 15K → 10K |
| EK :50236 and higher  | R513,514                      | 22 → 100  |

ADA-31 BOARD ( 2 / 2 )

BOARD NO.1-650-073-11,12  
PCM-E7700





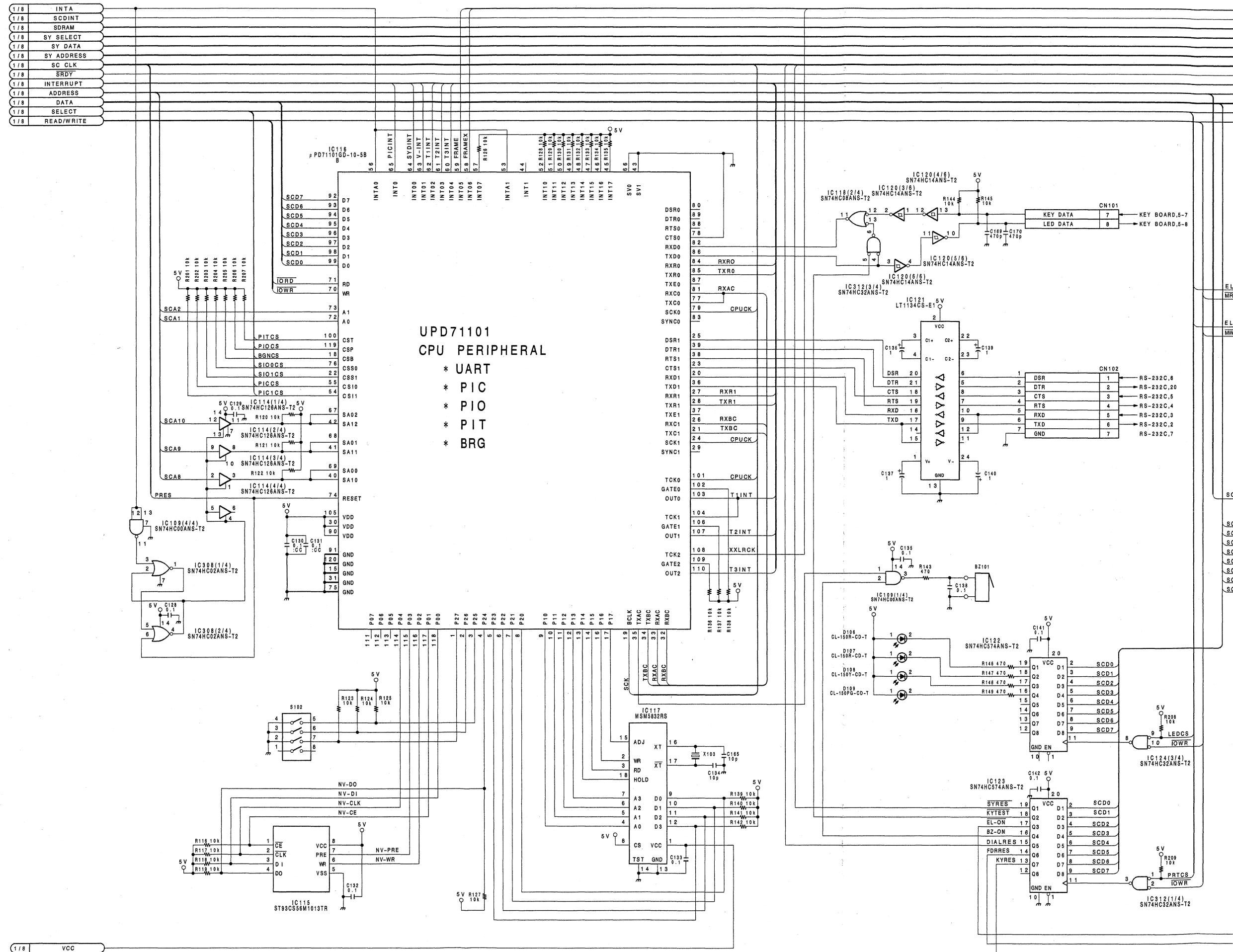






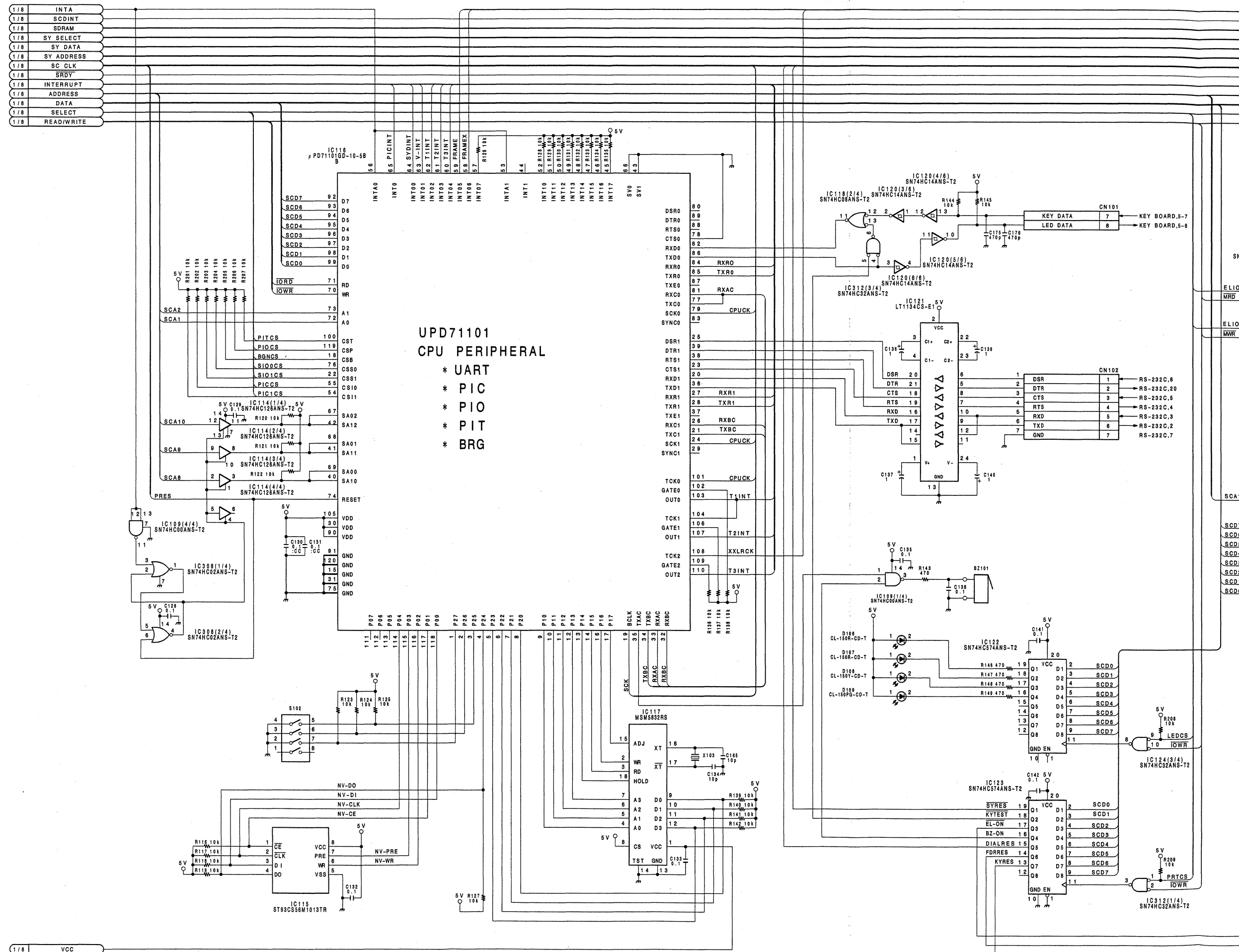
# SSP-8 BOARD (2/8)

System Control, Signal Processor



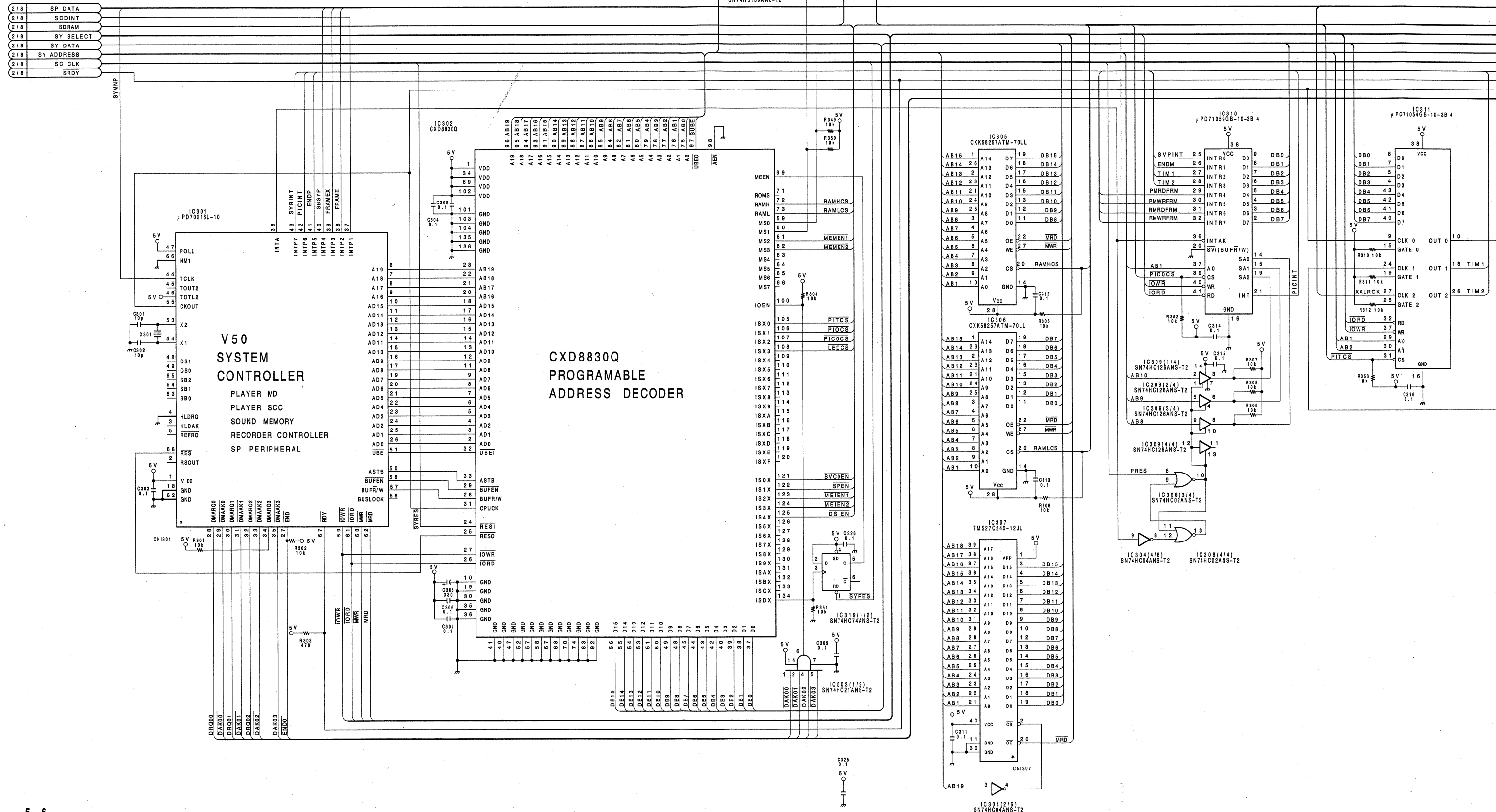


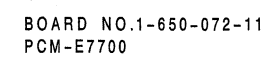
**SSP-8 BOARD (2 / 8)**  
System Control, Signal Processor







**SSP-8 BOARD (3/8)**  
System Control, Signal Processor





**SSP-8 BOARD (3/8)**  
System Control, Signal Processor

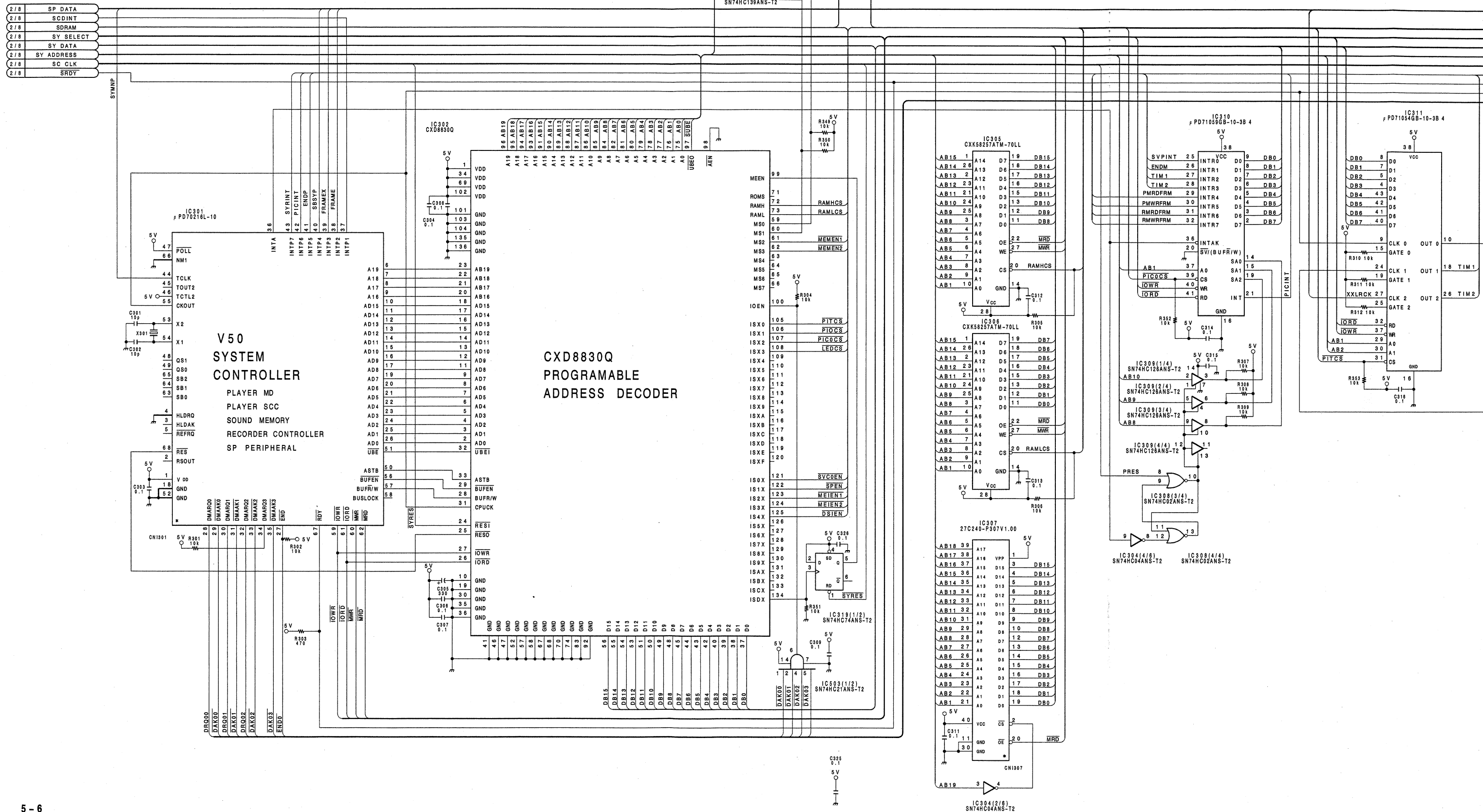
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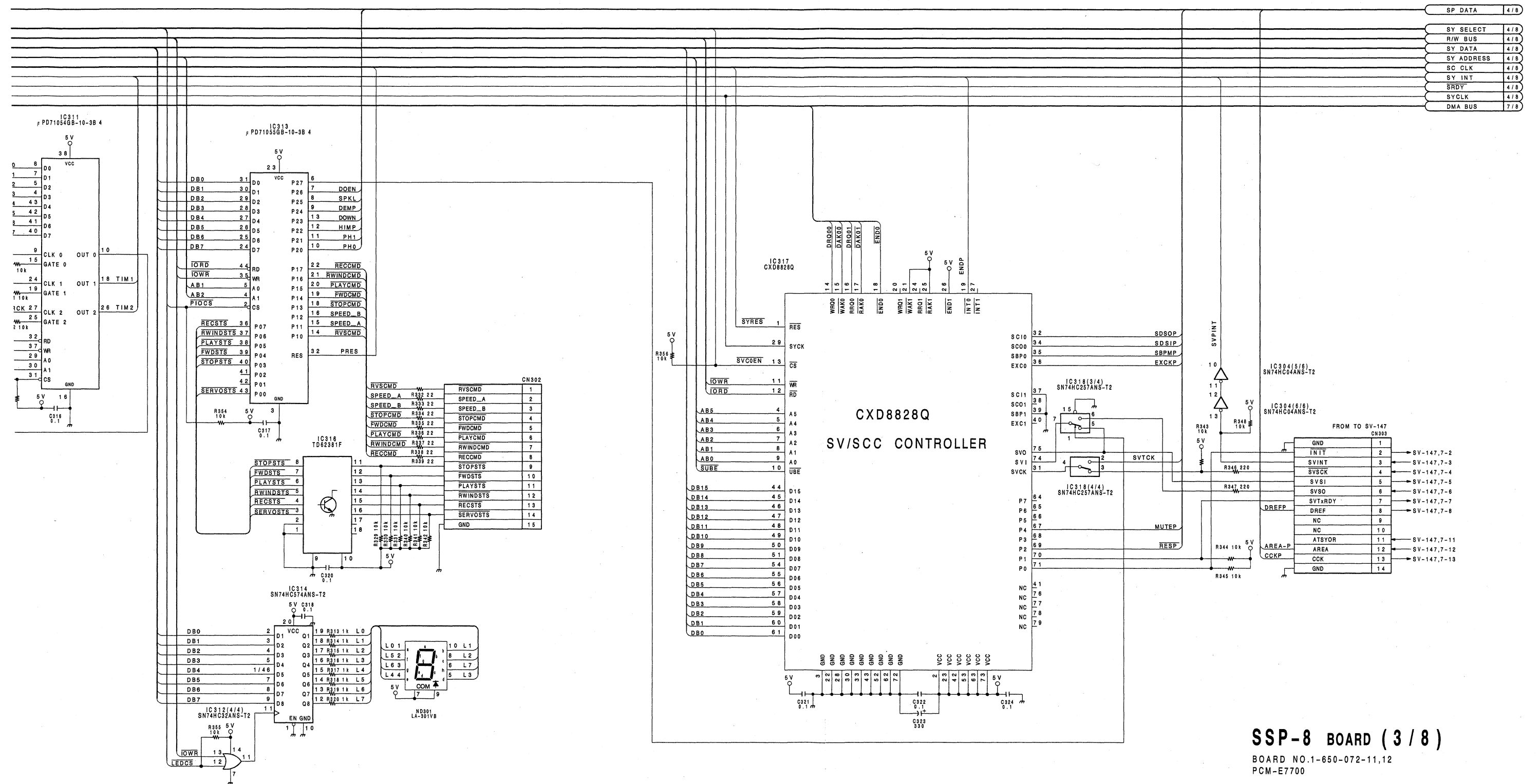
2

3

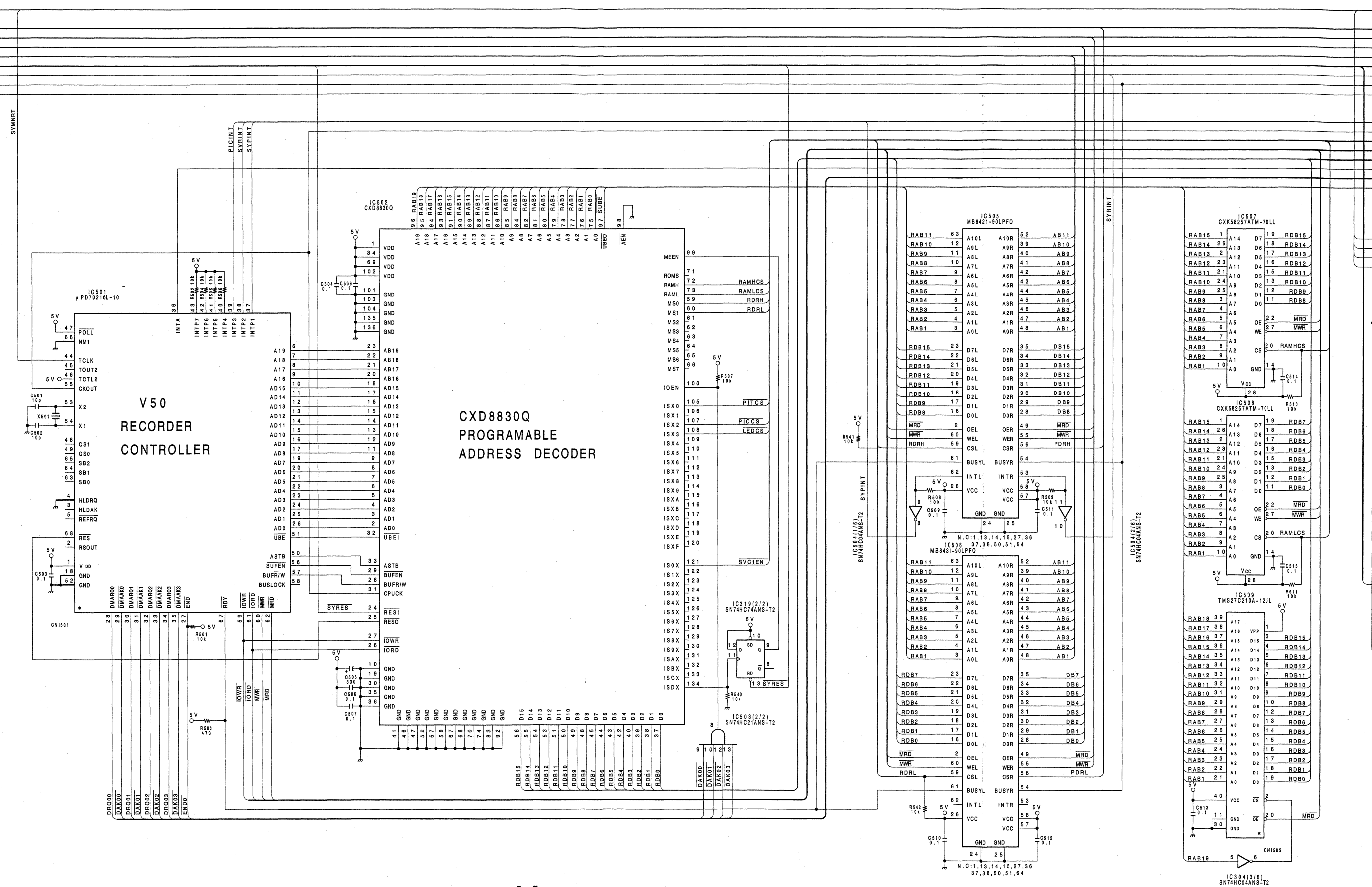
4

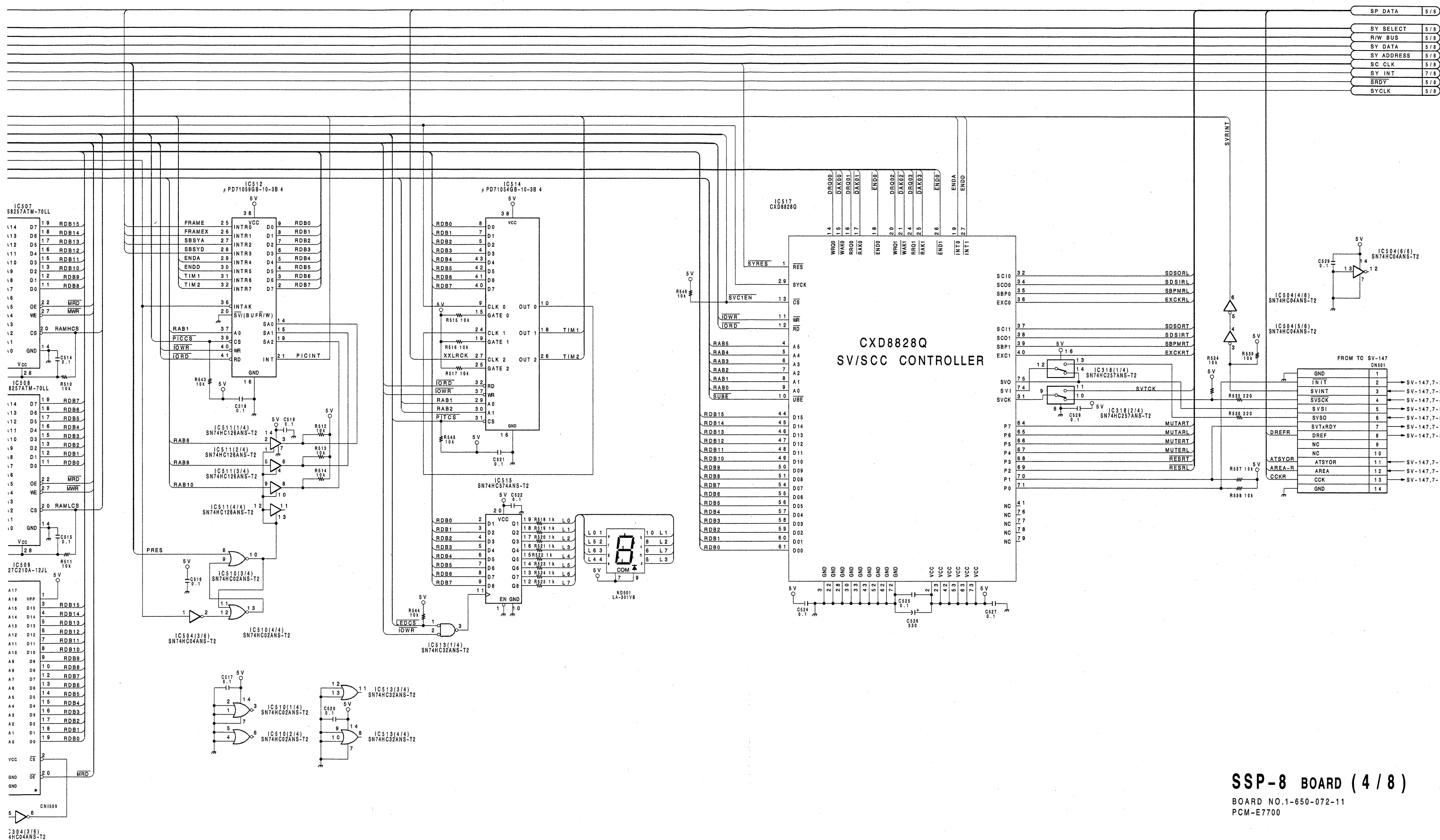
5





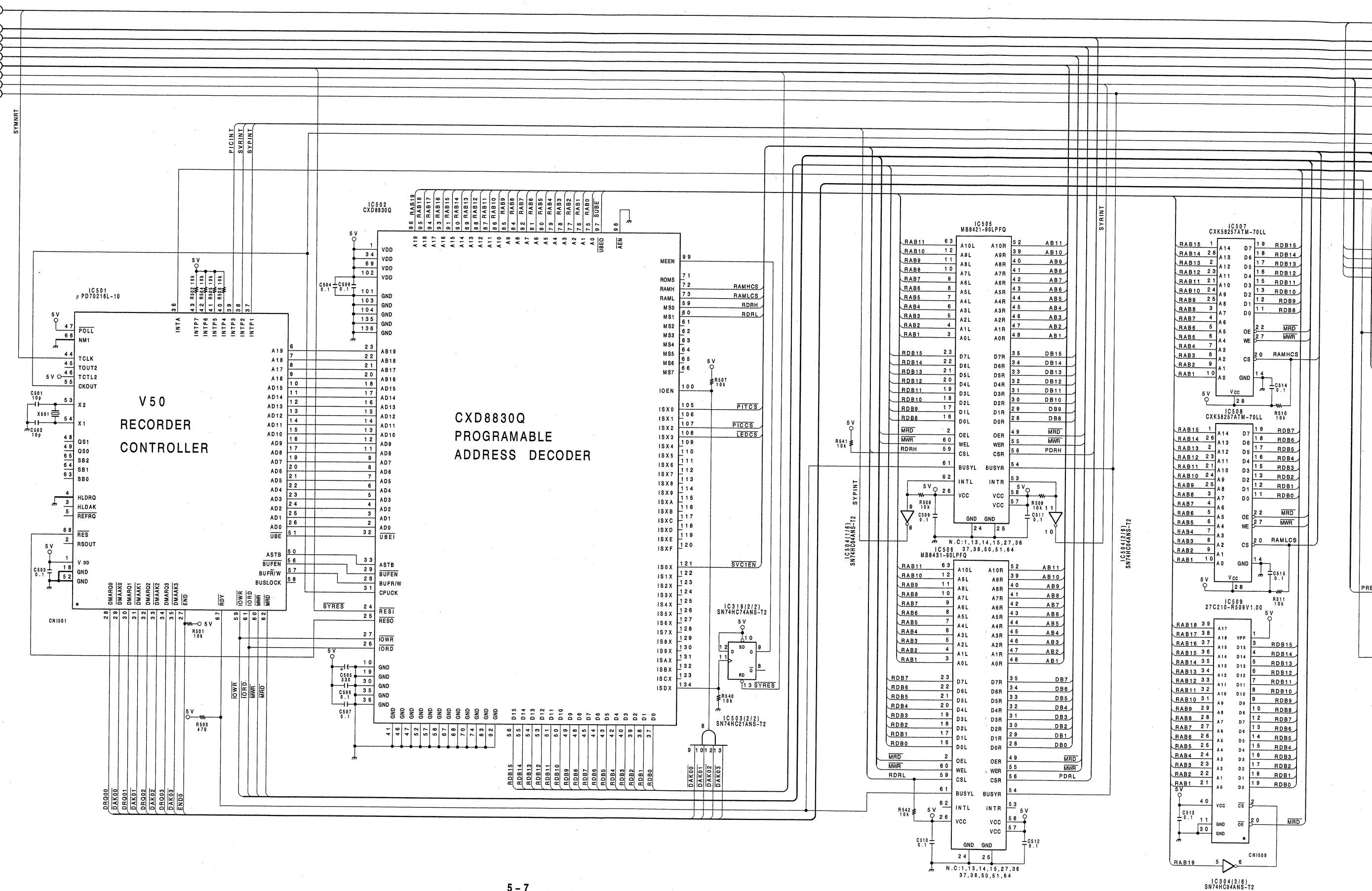
|       |            |
|-------|------------|
| 3 / 8 | SP DATA    |
| 3 / 8 | SY SELECT  |
| 3 / 8 | R/W BUS    |
| 3 / 8 | SY DATA    |
| 3 / 8 | SY ADDRESS |
| 3 / 8 | SC CLK     |
| 3 / 8 | SY INT     |
| 3 / 8 | SRDY       |
| 3 / 8 | SYCLK      |

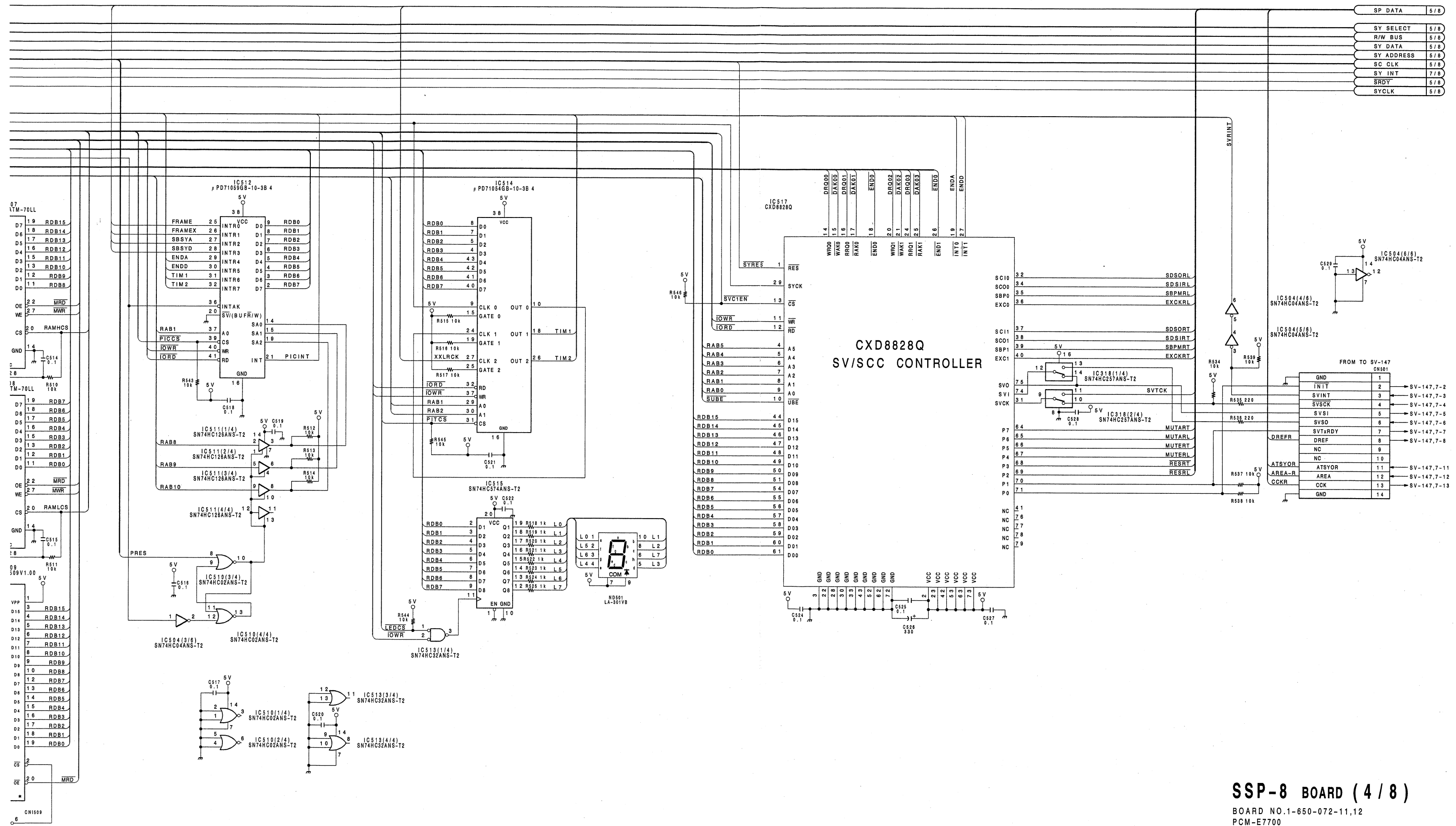




SSP-8 BOARD (4/8)  
System Control, Signal Processor

|     |            |
|-----|------------|
| 3/8 | SP DATA    |
| 3/8 | SY SELECT  |
| 3/8 | R/W BUS    |
| 3/8 | SY DATA    |
| 3/8 | SY ADDRESS |
| 3/8 | SC CLK     |
| 3/8 | SY INT     |
| 3/8 | SRDY       |
| 3/8 | SYCLK      |

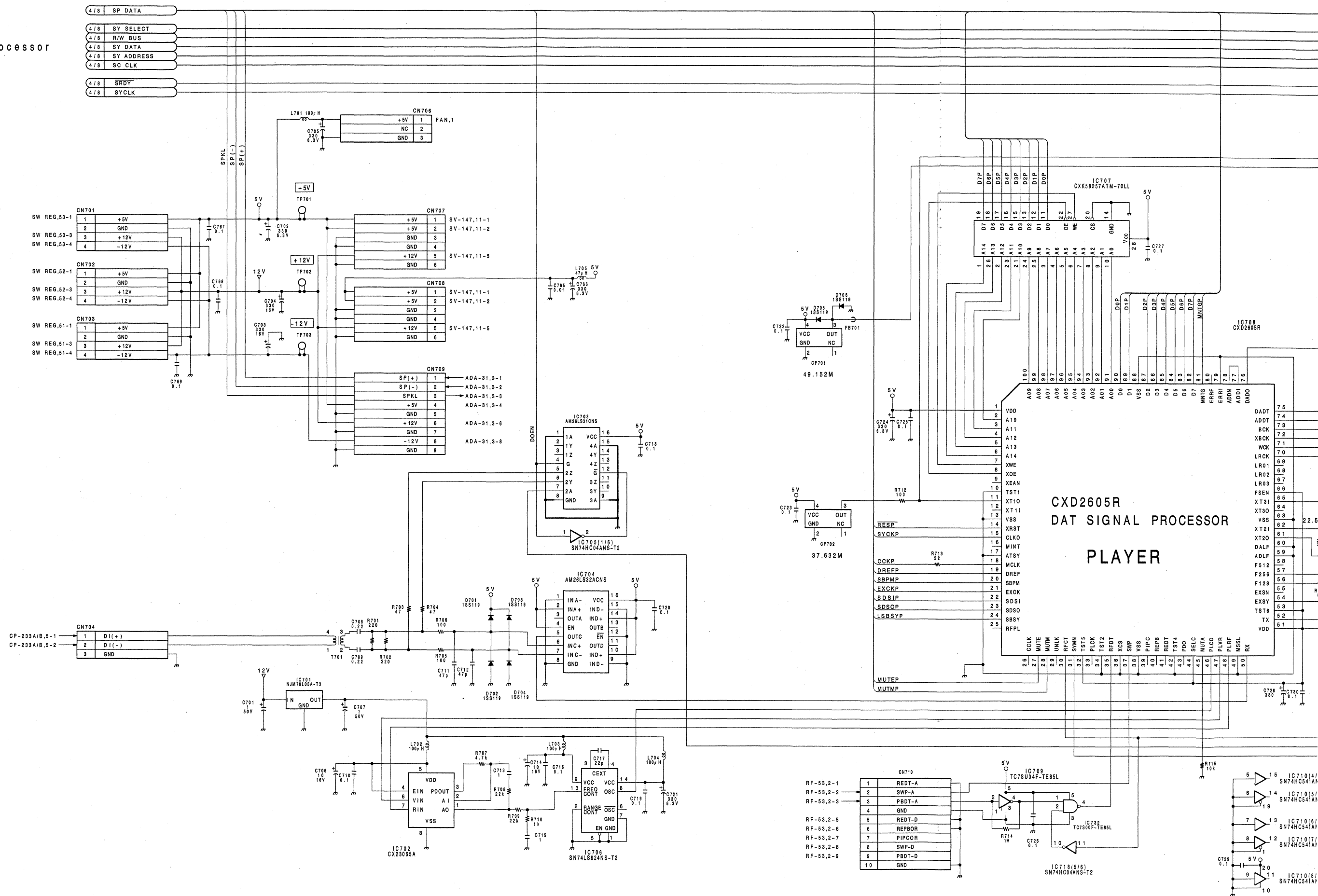




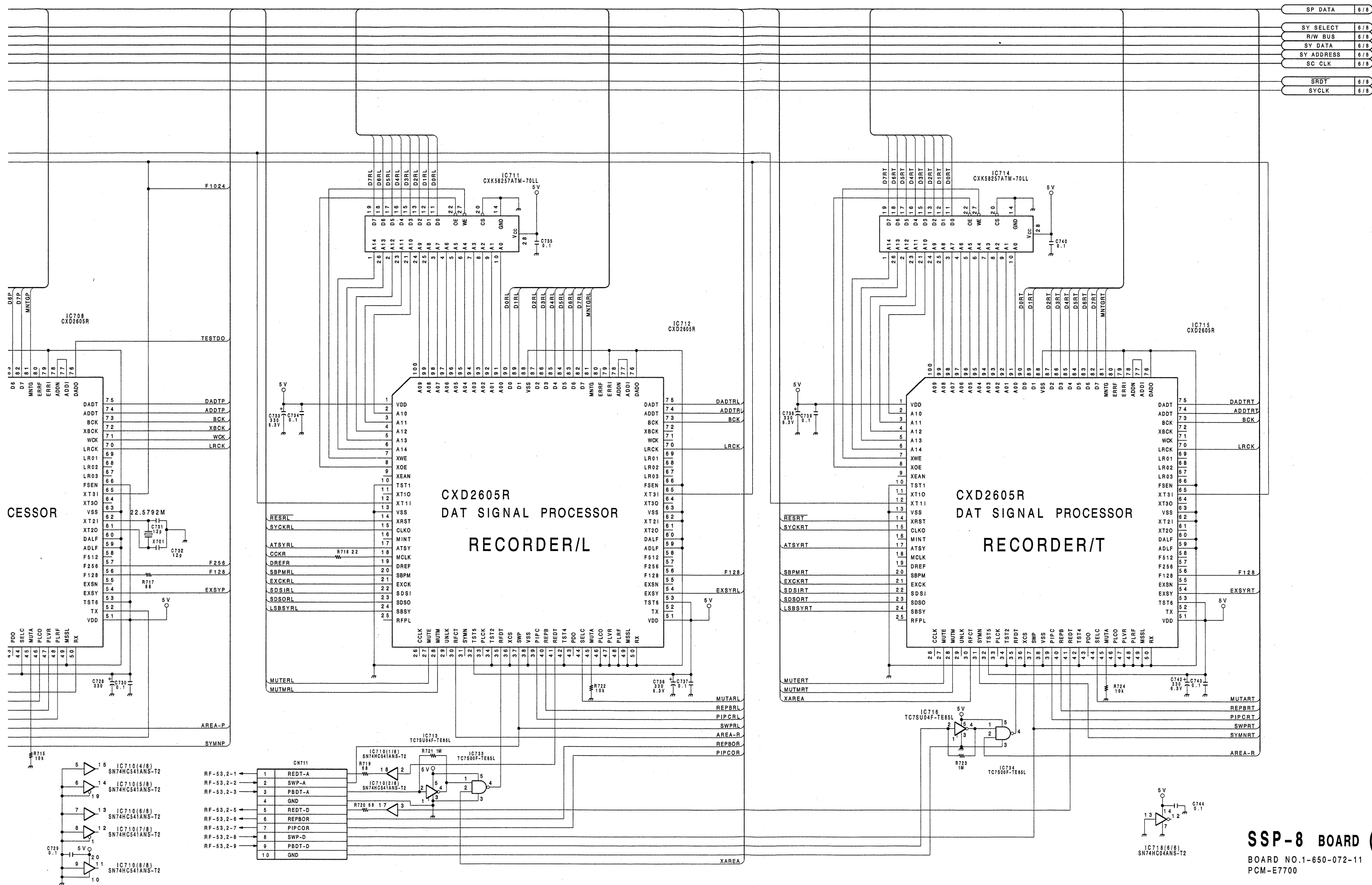
SSP-8 BOARD ( 4 / 8 )

BOARD NO.1-650-072-11,12  
PCM-E7700

## System Control, Signal Processor







SSP-8 BOARD (5/8)

BOARD NO.1-650-072-11  
PCM-E7700

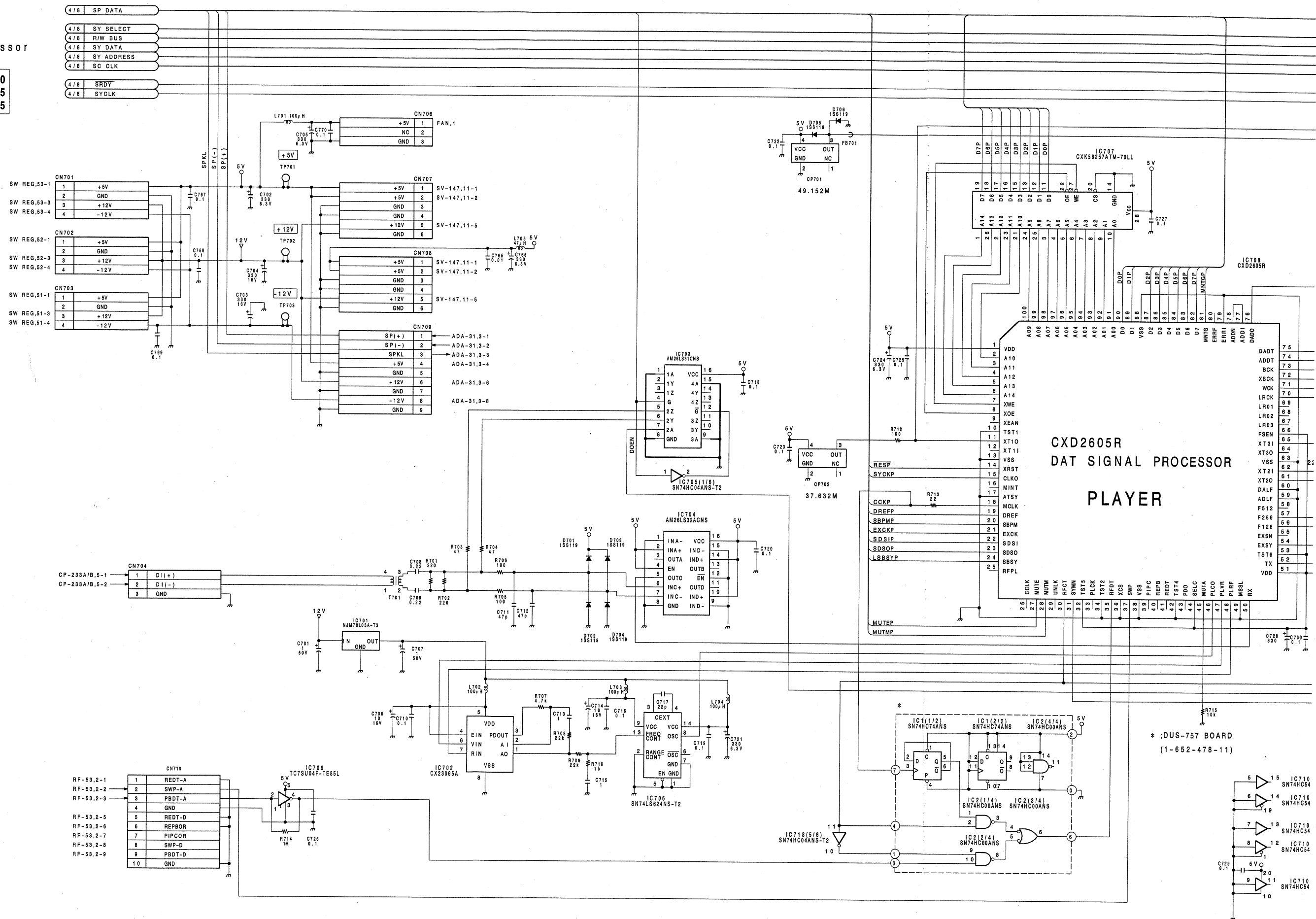


SSP-8(5/8)

SSP-8(5/8)

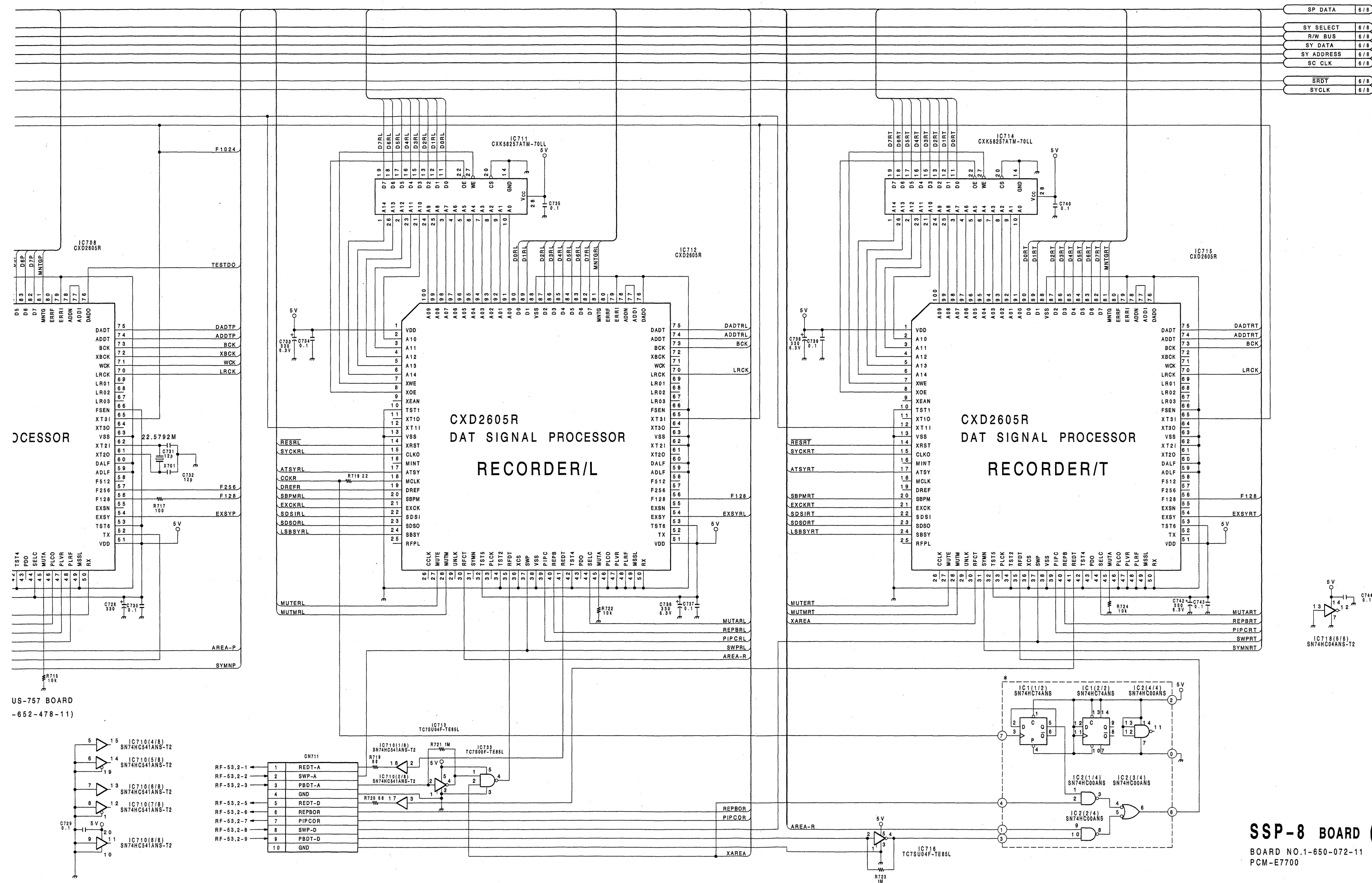
**SSP-8 BOARD (5/8)**  
System Control, Signal Processor

Serial No. J ; 10001 to 10110  
UC ; 20001 to 20055  
EK ; 50001 to 50235



\* :DUS-757 BOARD  
(1-652-478-11)

|            |     |
|------------|-----|
| SP DATA    | 6/8 |
| SY SELECT  | 6/8 |
| R/W BUS    | 6/8 |
| SY DATA    | 6/8 |
| SY ADDRESS | 6/8 |
| SC CLK     | 6/8 |
| SRDT       | 6/8 |
| SYCLK      | 6/8 |

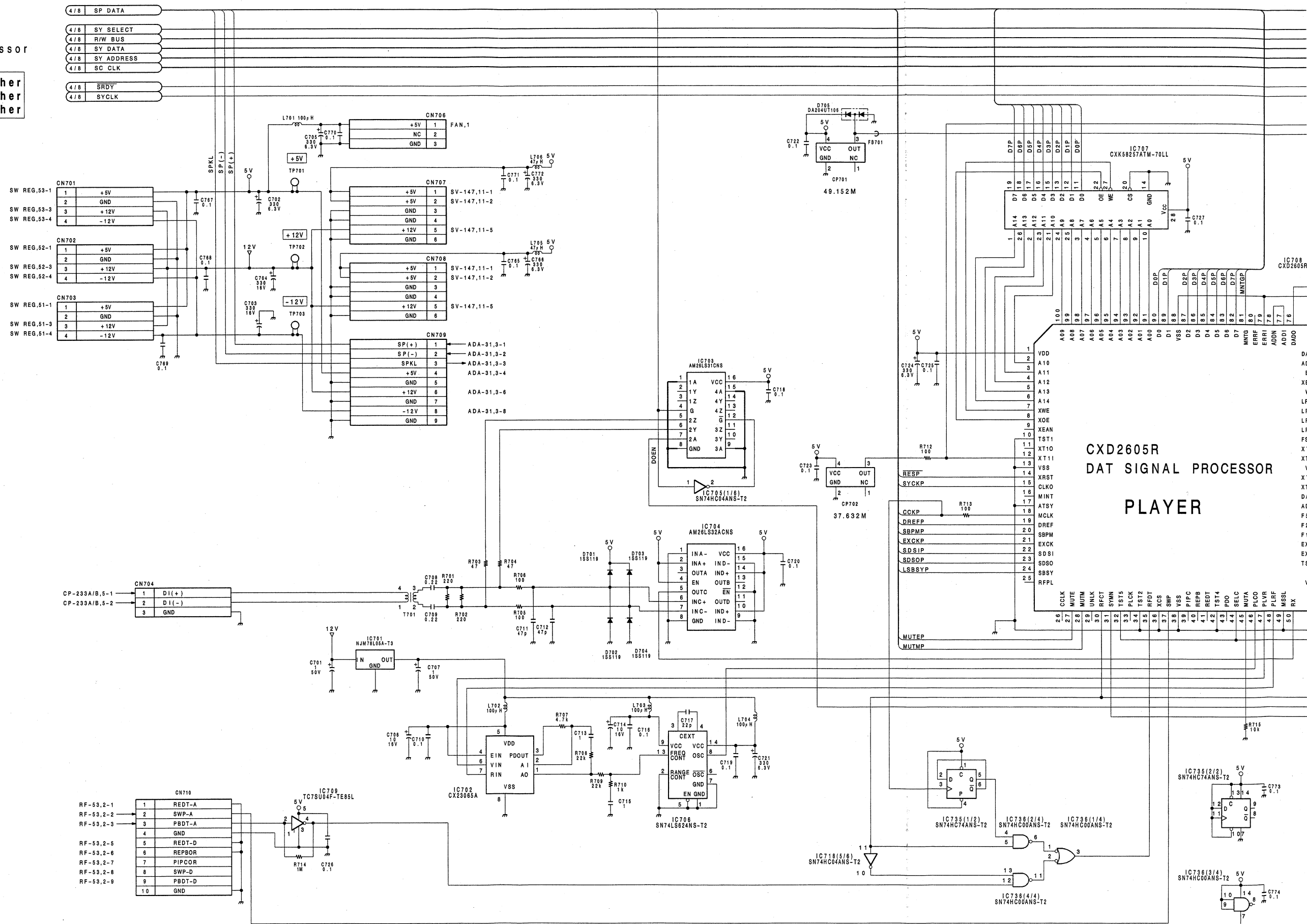


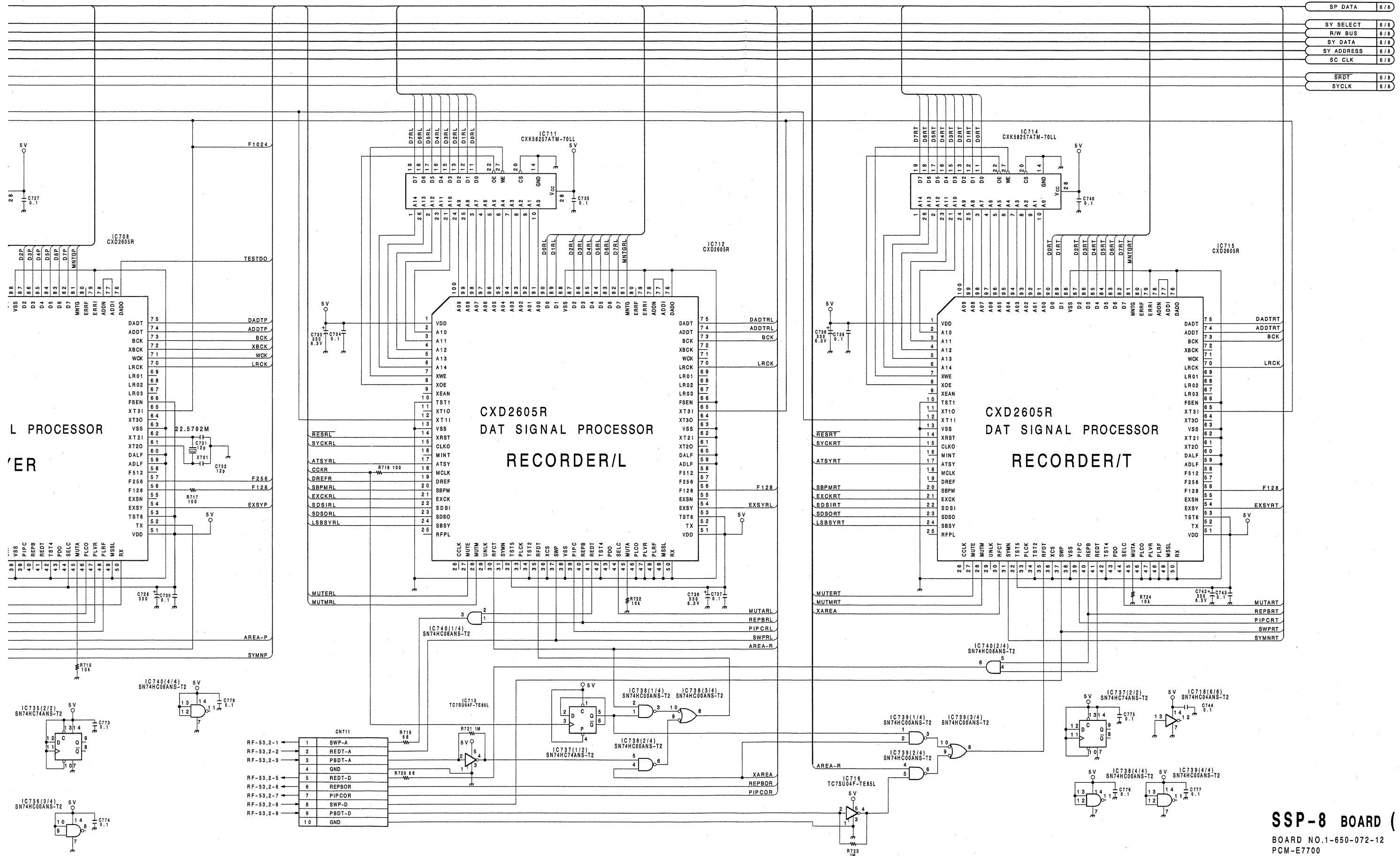
SSP-8 BOARD (5/8)  
BOARD NO.1-650-072-11  
PCM-E7700

## SSP-8 BOARD ( 5 / 8 )

System Control, Signal Processor

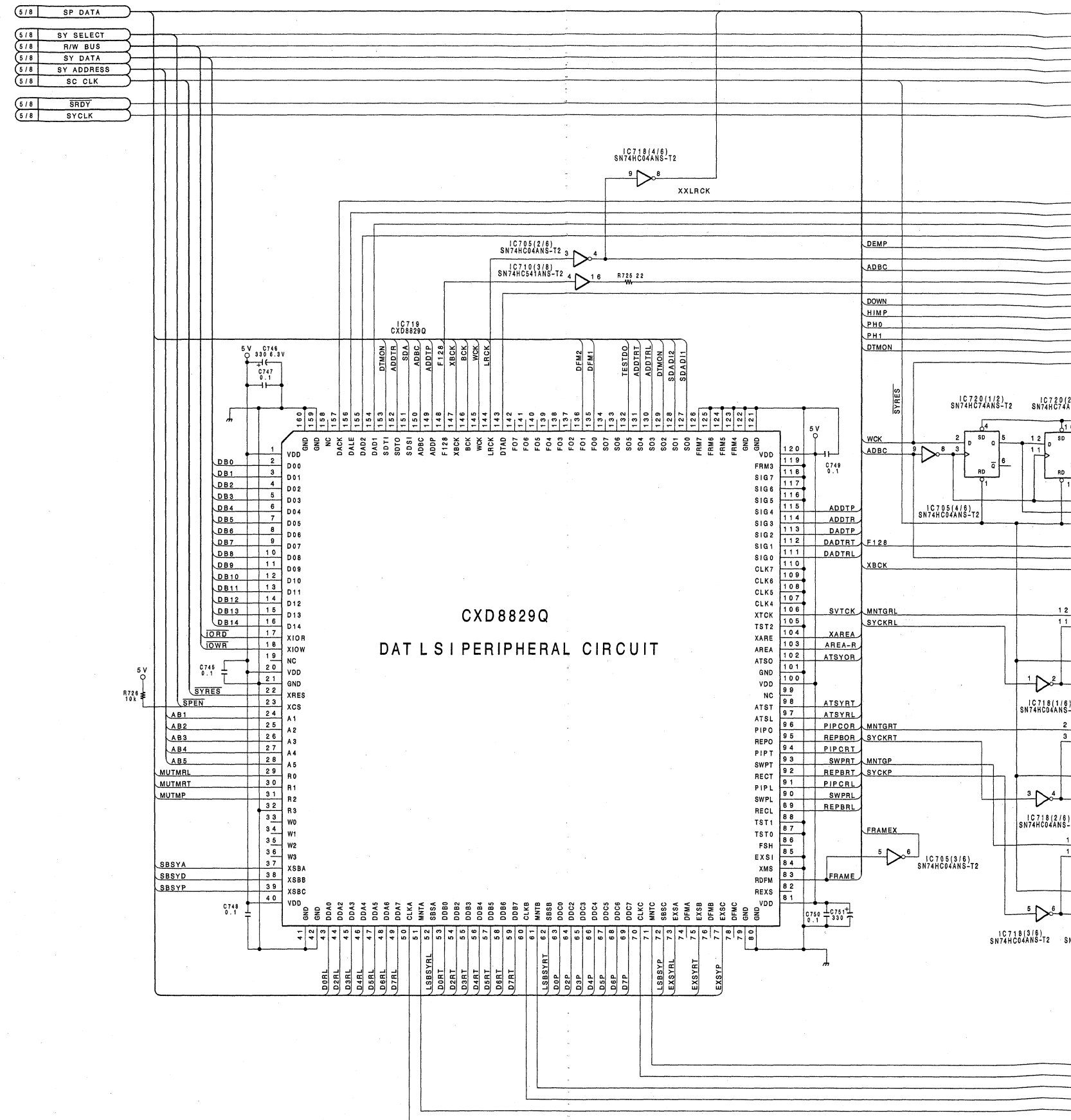
|            |                      |
|------------|----------------------|
| Serial No. | J ;10111 and higher  |
|            | UC ;20056 and higher |
|            | EK ;50236 and higher |





SSP-8 BOARD (5/8)  
BOARD NO.1-650-072-12  
PCM-E7700

**SSP-8 BOARD (6/8)**  
System Control, Signal Processor



|            |     |
|------------|-----|
| SP DATA    | 7/8 |
| SY SELECT  | 7/8 |
| R/W BUS    | 7/8 |
| SY DATA    | 7/8 |
| SY ADDRESS | 7/8 |
| SC CLK     | 7/8 |
| SRDY       | 7/8 |
| SYCLK      | 7/8 |

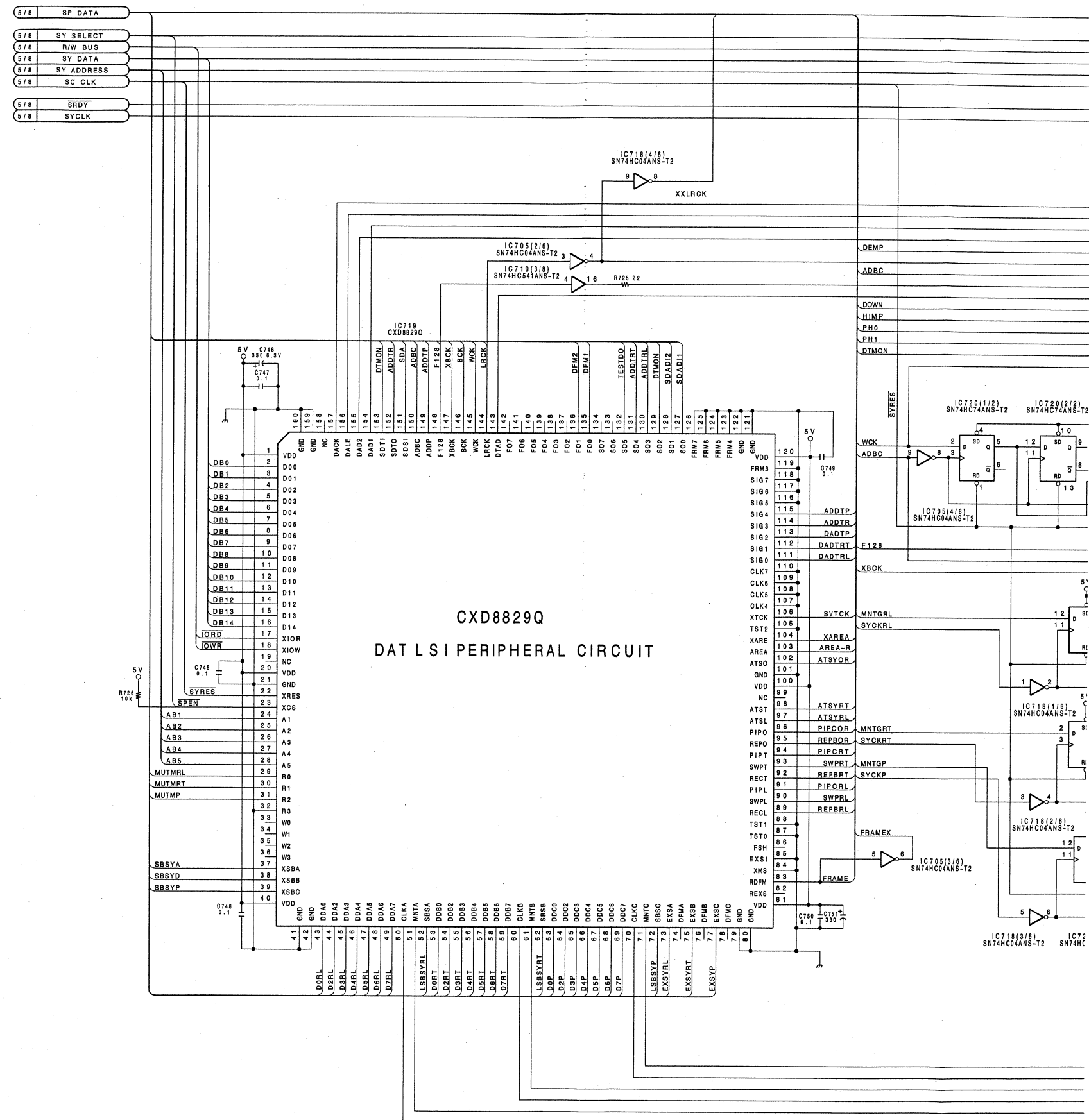
| CN112 |    |
|-------|----|
| DACK  | 1  |
| DALE  | 2  |
| DAD1  | 3  |
| DAD2  | 4  |
| DAMP  | 5  |
| XLCK  | 6  |
| ADBC  | 7  |
| F128  | 8  |
| DTAD  | 9  |
| DOWN  | 10 |
| HIMP  | 11 |
| PH0   | 12 |
| PH1   | 13 |
| GND   | 14 |
| GND   | 15 |

# SSP-8 BOARD (6/8)

BOARD NO.1-650-072-11  
PCM-E7700

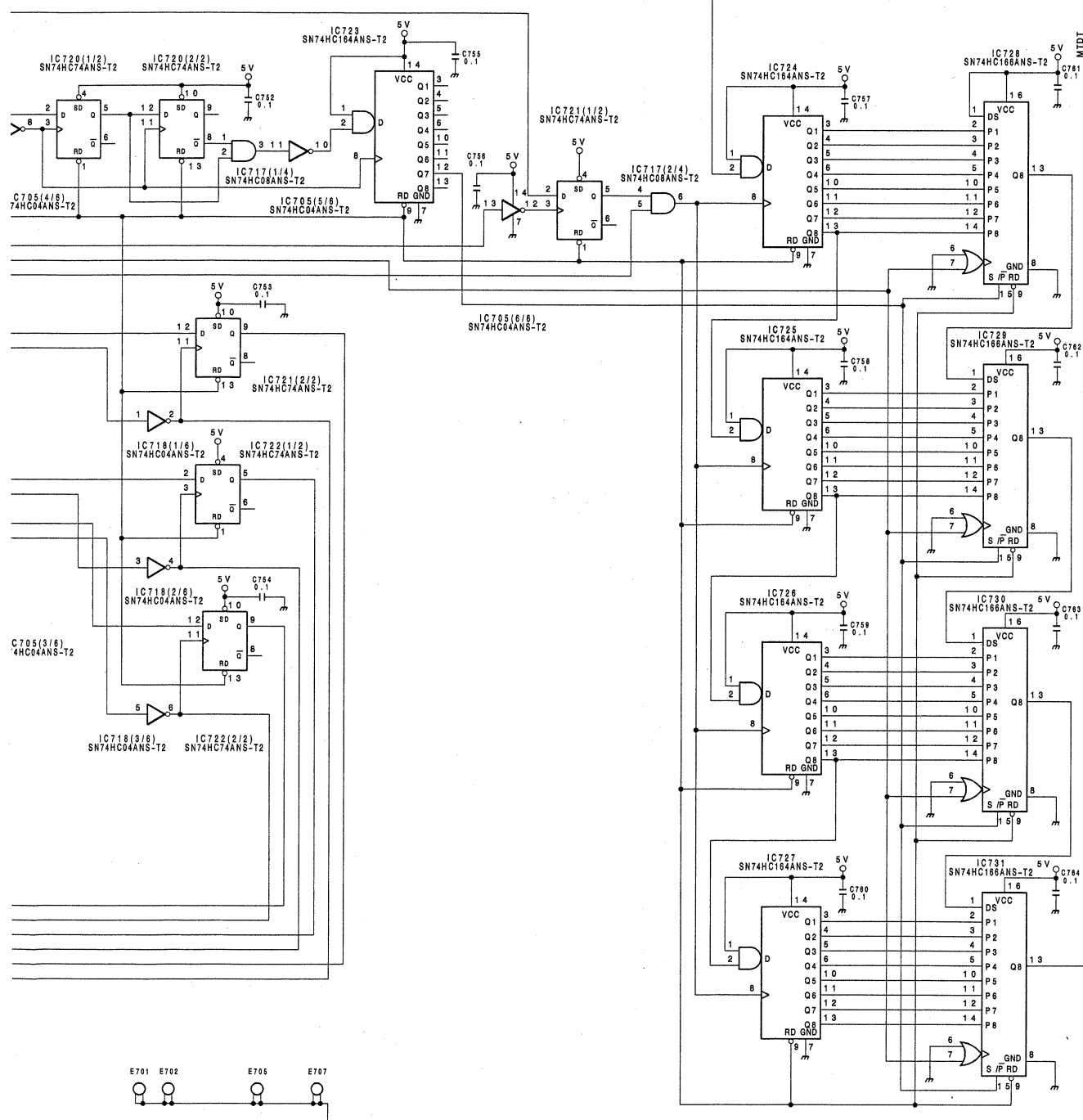
**SSP-8 BOARD ( 6 / 8 )**  
System Control, Signal Processor

|            |                   |
|------------|-------------------|
| Serial No. | J ;10001 to 10110 |
|            | UC;20001 to 20055 |
|            | EK;50001 to 50235 |



|            |     |
|------------|-----|
| SP DATA    | 7/8 |
| SY SELECT  | 7/8 |
| R/W BUS    | 7/8 |
| SY DATA    | 7/8 |
| SY ADDRESS | 7/8 |
| SC CLK     | 7/8 |
| SRDY       | 7/8 |
| SYCLK      | 7/8 |

|      |    |               |
|------|----|---------------|
| DACK | 1  | → ADA-31,2-1  |
| DALE | 2  | → ADA-31,2-2  |
| DAD1 | 3  | → ADA-31,2-3  |
| DAD2 | 4  | → ADA-31,2-4  |
| DAMP | 5  | → ADA-31,2-5  |
| XLCK | 6  | → ADA-31,2-6  |
| ADBC | 7  | → ADA-31,2-7  |
| F128 | 8  | → ADA-31,2-8  |
| DTAD | 9  | → ADA-31,2-9  |
| DOWN | 10 | → ADA-31,2-10 |
| HIMP | 11 | → ADA-31,2-11 |
| PH0  | 12 | → ADA-31,2-12 |
| PH1  | 13 | → ADA-31,2-13 |
| GND  | 14 |               |
| GND  | 15 |               |

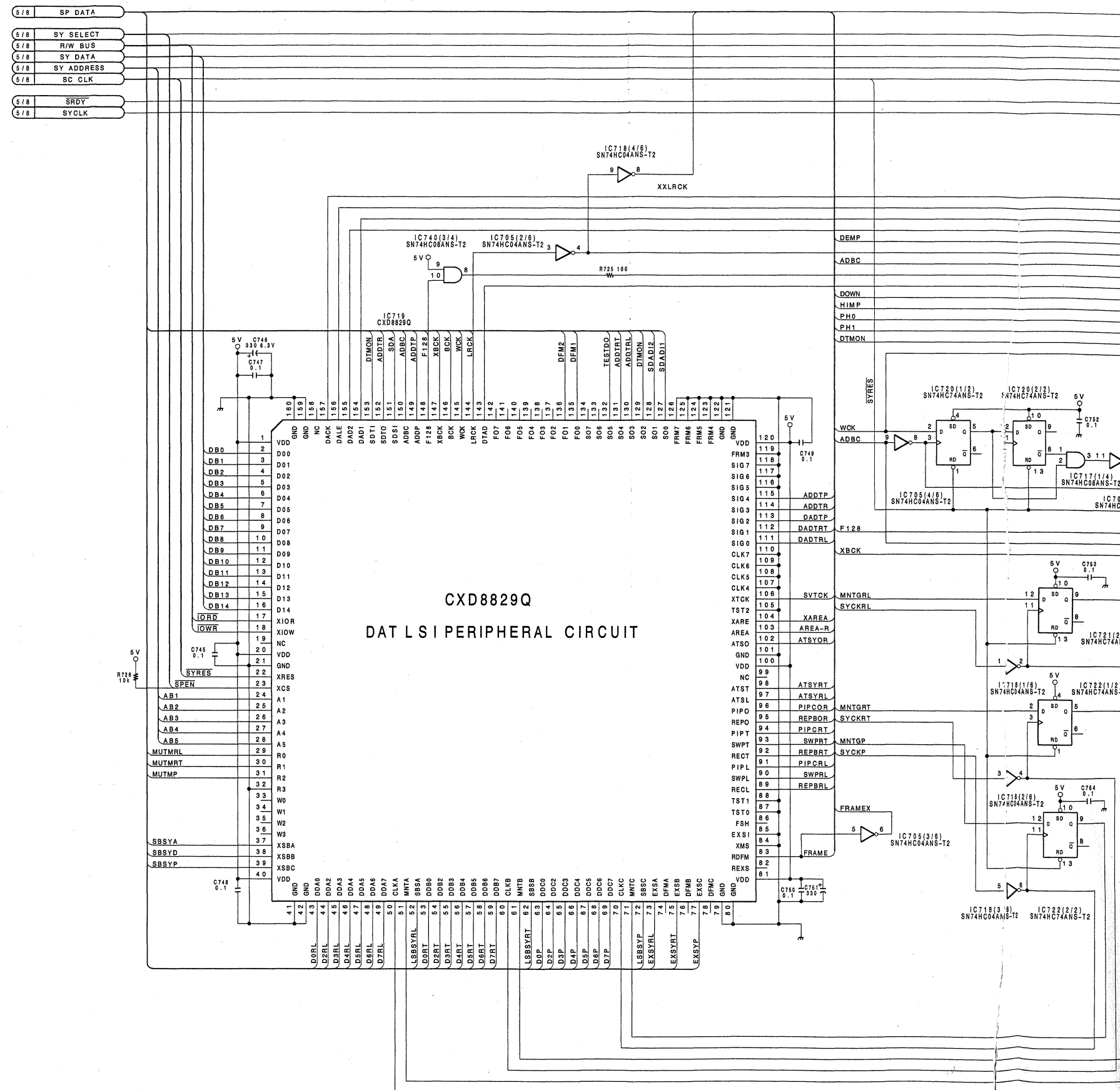


**SSP-8 BOARD (6/8)**  
BOARD NO.1-650-072-11  
PCM-E7700



**SSP-8 BOARD ( 6 / 8 )**  
System Control, Signal Processor

|  |
|--|
| Serial No. J ;10111 and higher<br>UC;20056 and higher<br>EK;50236 and higher |
|--|



SSP-8(6/8)

SSP-8(6/8)

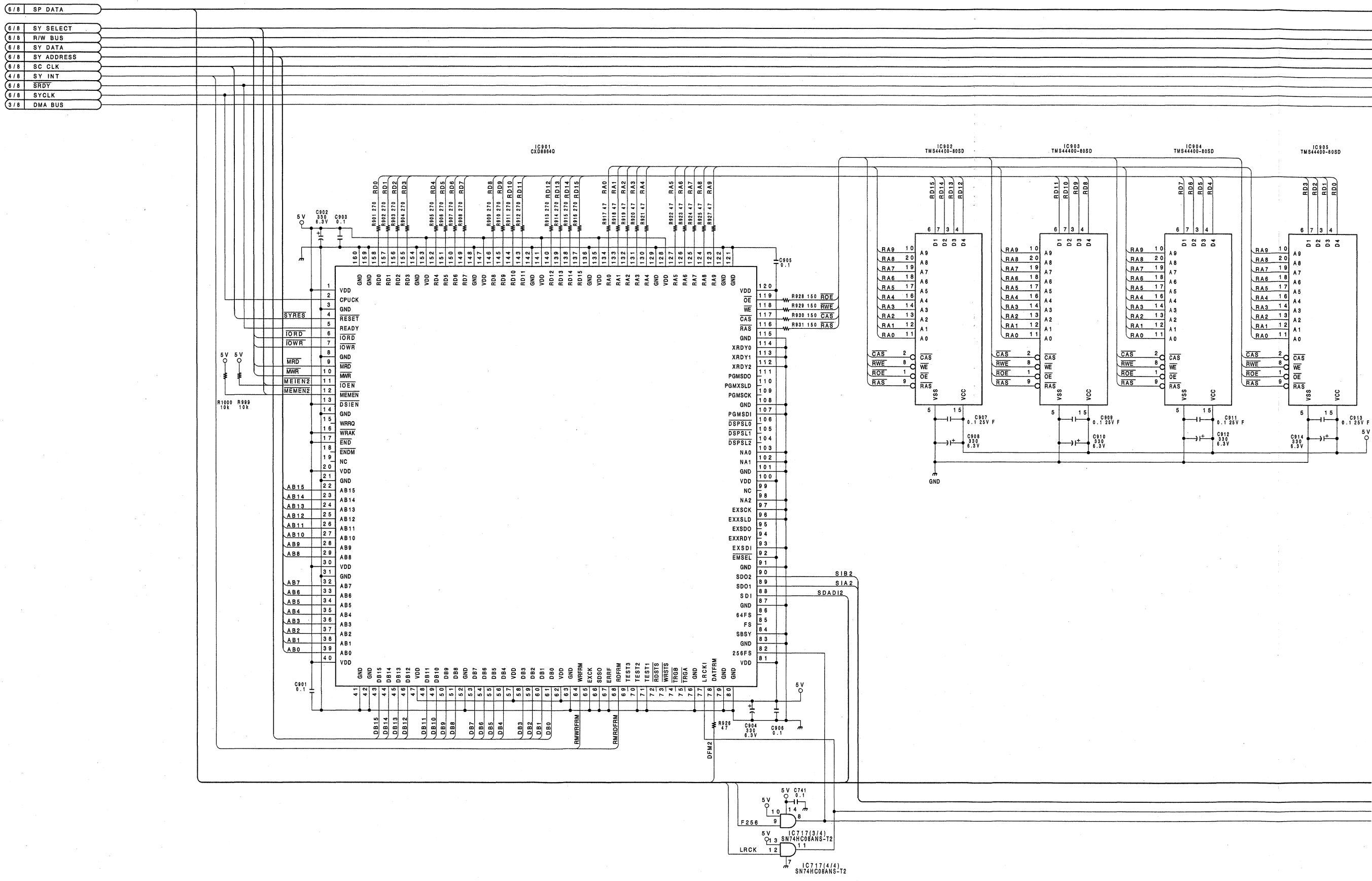
|            |     |
|------------|-----|
| SP DATA    | 7/8 |
| SY SELECT  | 7/8 |
| R/W BUS    | 7/8 |
| SY DATA    | 7/8 |
| SY ADDRESS | 7/8 |
| SC CLK     | 7/8 |
| SRDY       | 7/8 |
| SYCLK      | 7/8 |

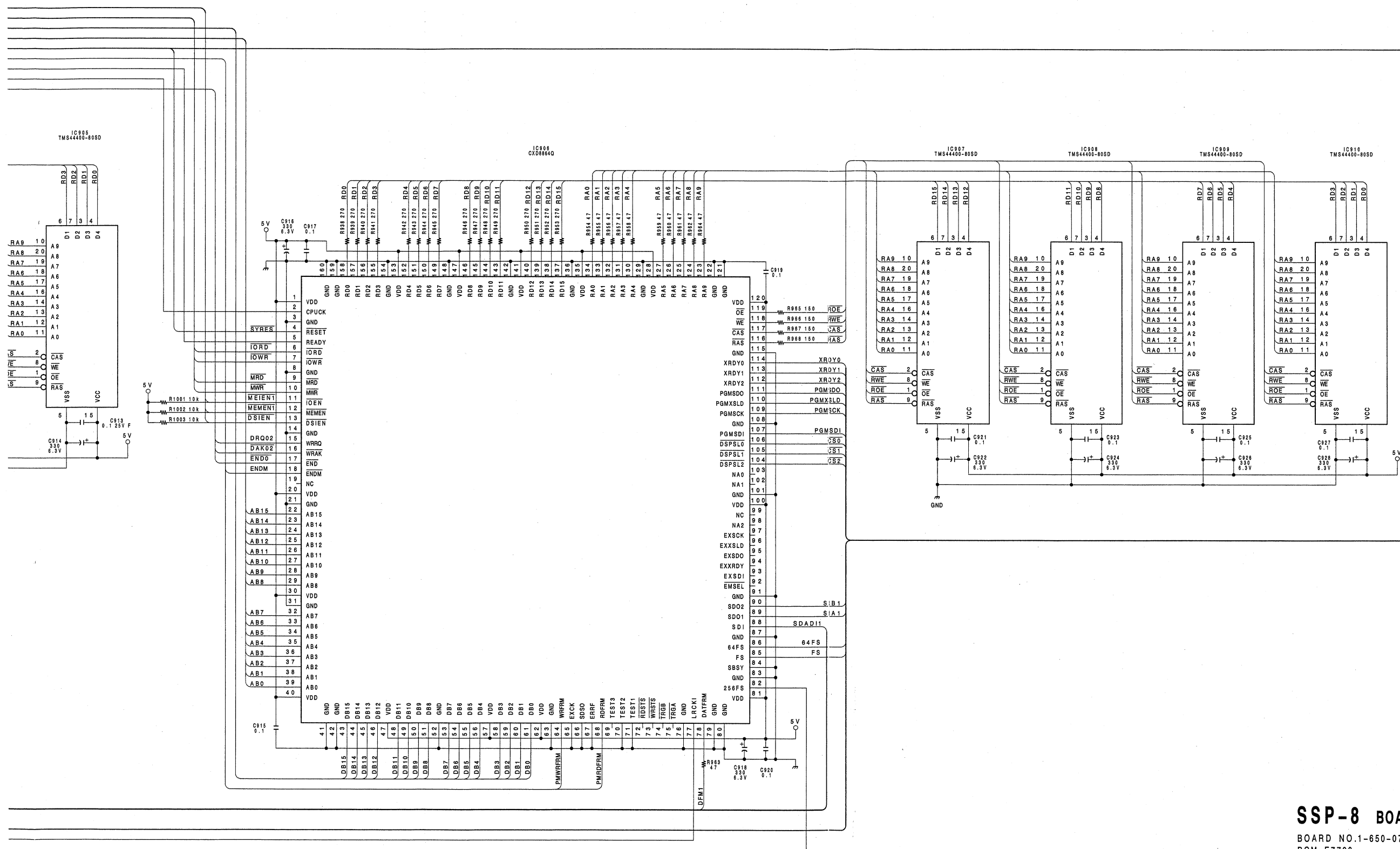
| CN712 |    |
|-------|----|
| DACK  | 1  |
| DALE  | 2  |
| DAD1  | 3  |
| DAD2  | 4  |
| DAMP  | 5  |
| XLCK  | 6  |
| ADBC  | 7  |
| F128  | 8  |
| DTAD  | 9  |
| DOWN  | 10 |
| HIMP  | 11 |
| PH0   | 12 |
| PH1   | 13 |
| GND   | 14 |
| GND   | 15 |

# SSP-8 BOARD (6/8)

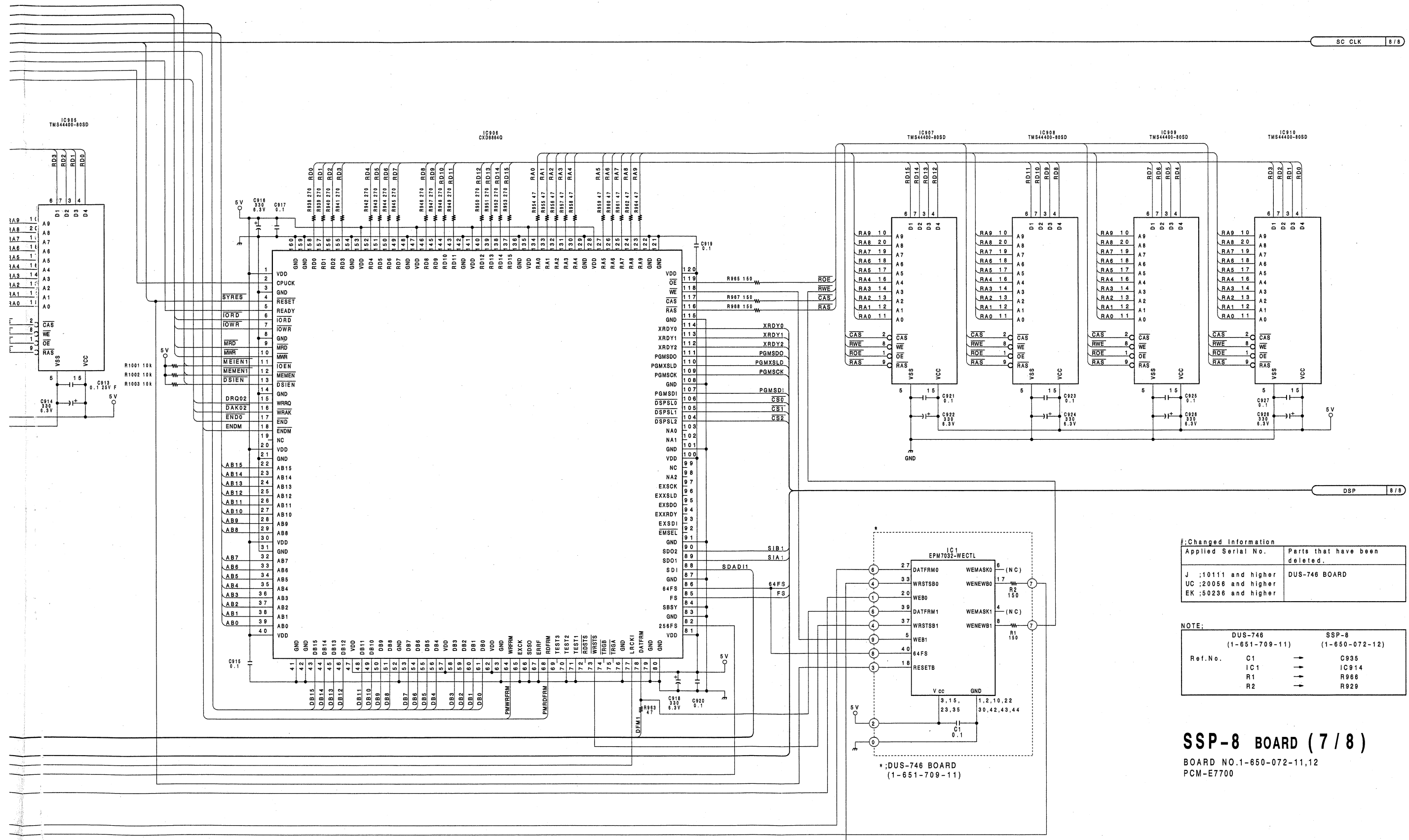
BOARD NO.1-650-072-12  
PCM-E7700

SSP-8 BOARD (7/8)  
System Control,Signal Processor





H



Changed Information

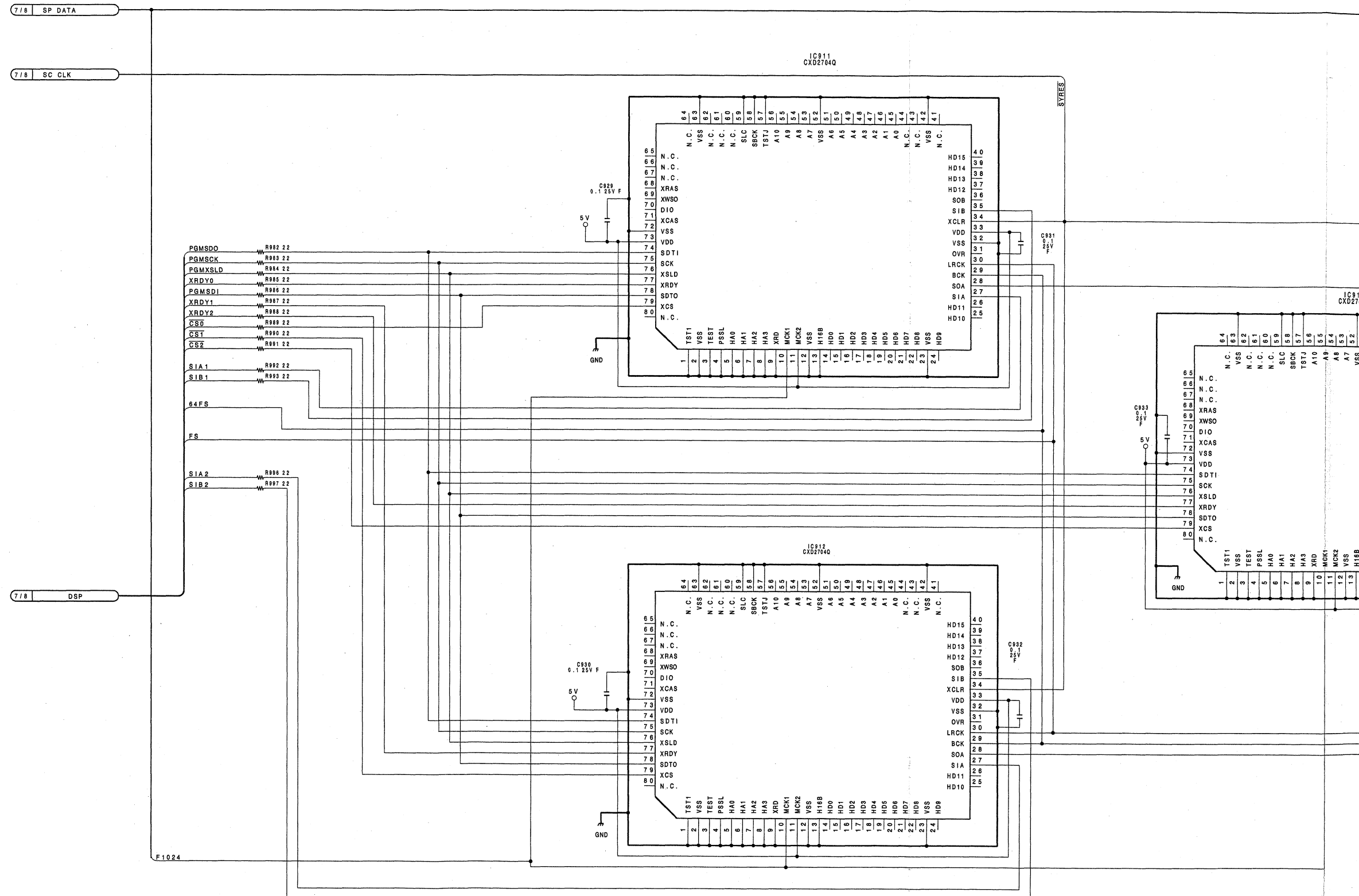
| Applied Serial No.  | Parts that have been deleted. |
|---|-------------------------------|
| J :10111 and higher<br>UC :20056 and higher<br>EK :50236 and higher | DUS-746 BOARD                 |

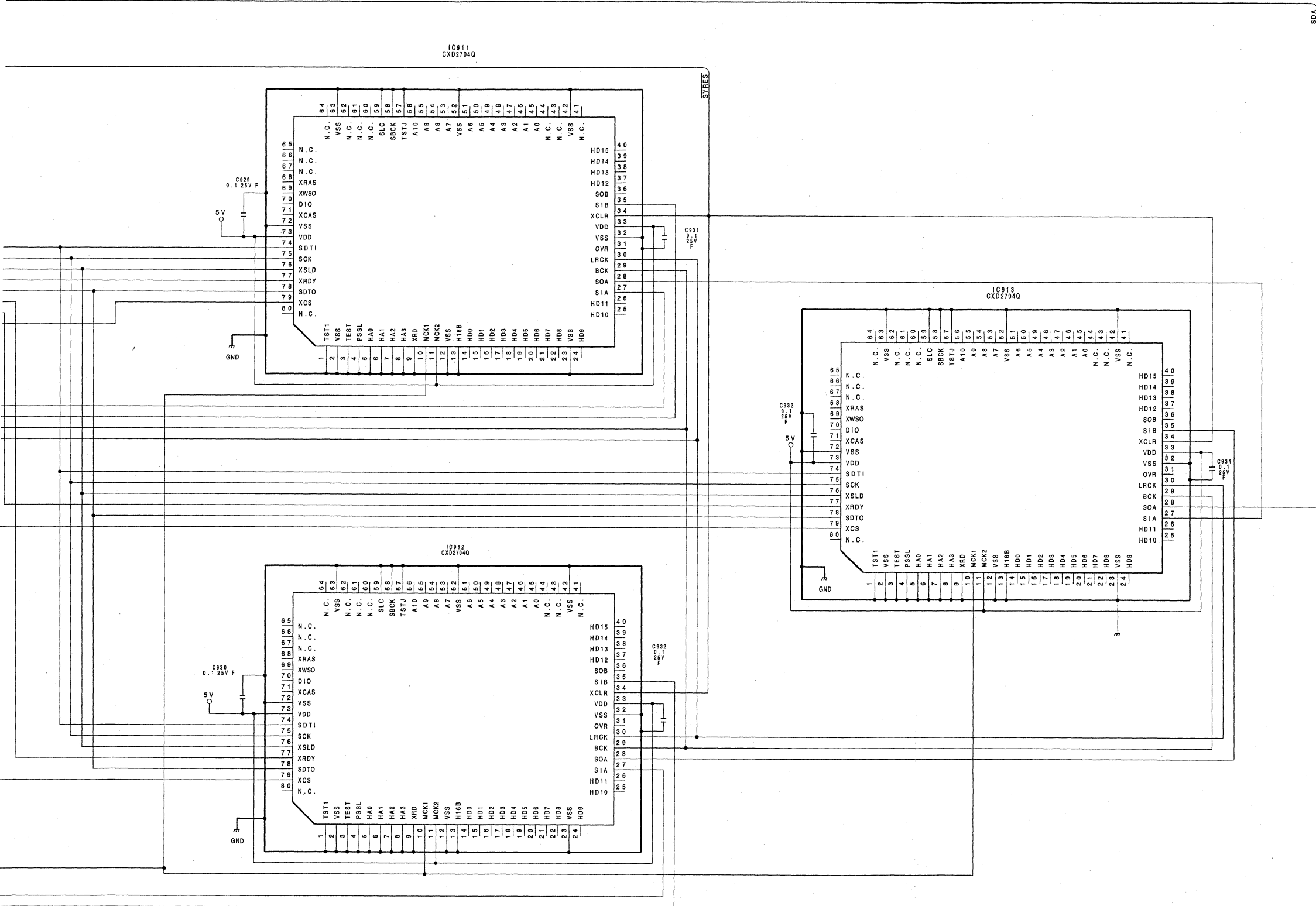
NOTE:

|         | DUS-746<br>(1-651-709-11) | SSP-8<br>(1-650-072-12) |
|---------|---------------------------|-------------------------|
| Ref.No. | C1                        | C935                    |
|         | IC1                       | IC914                   |
|         | R1                        | R966                    |
|         | R2                        | R929                    |

**SSP-8 BOARD (7/8)**  
BOARD NO.1-650-072-11,12  
PCM-E7700

SSP-8 BOARD (8/8)  
System Control, Signal Processor

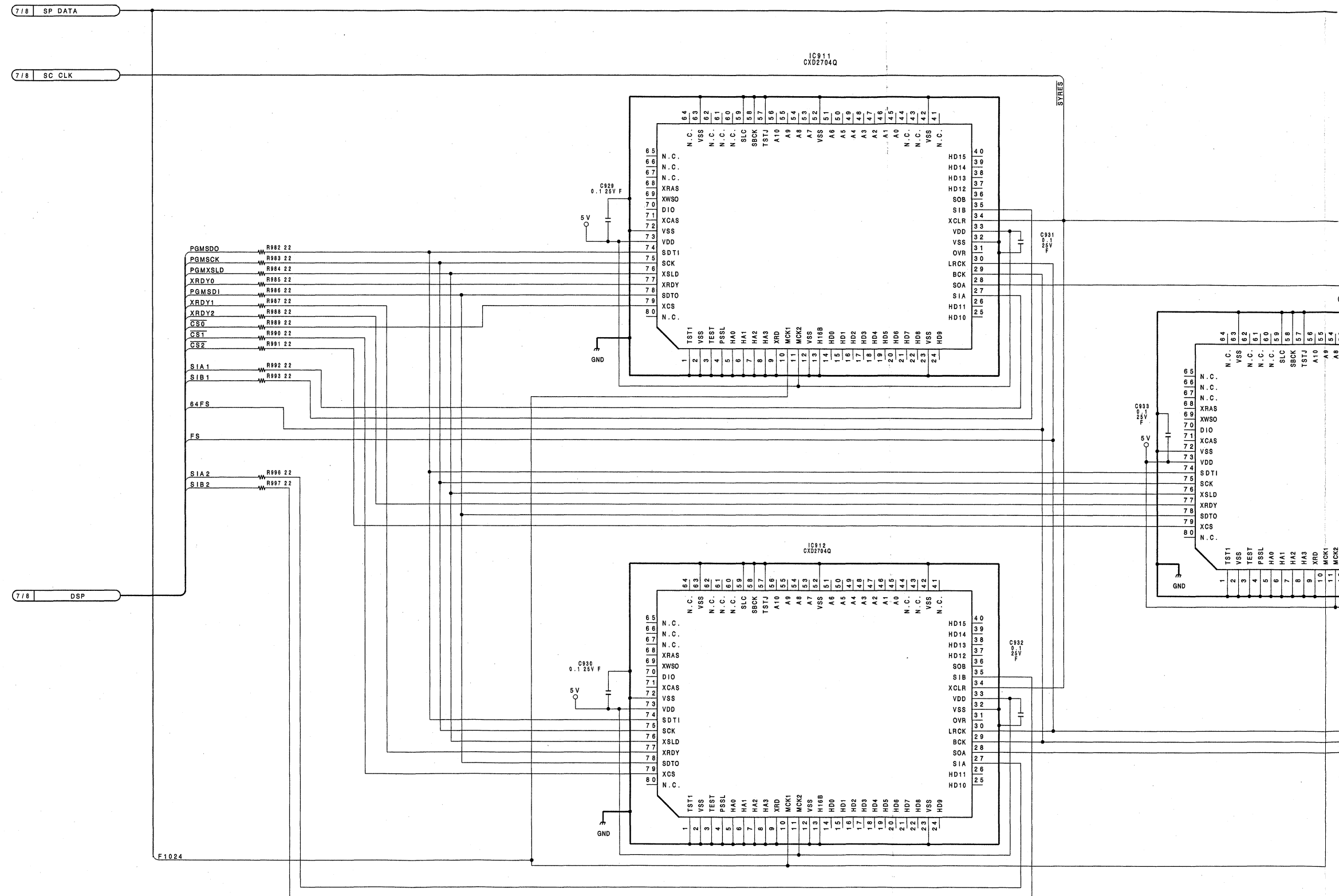


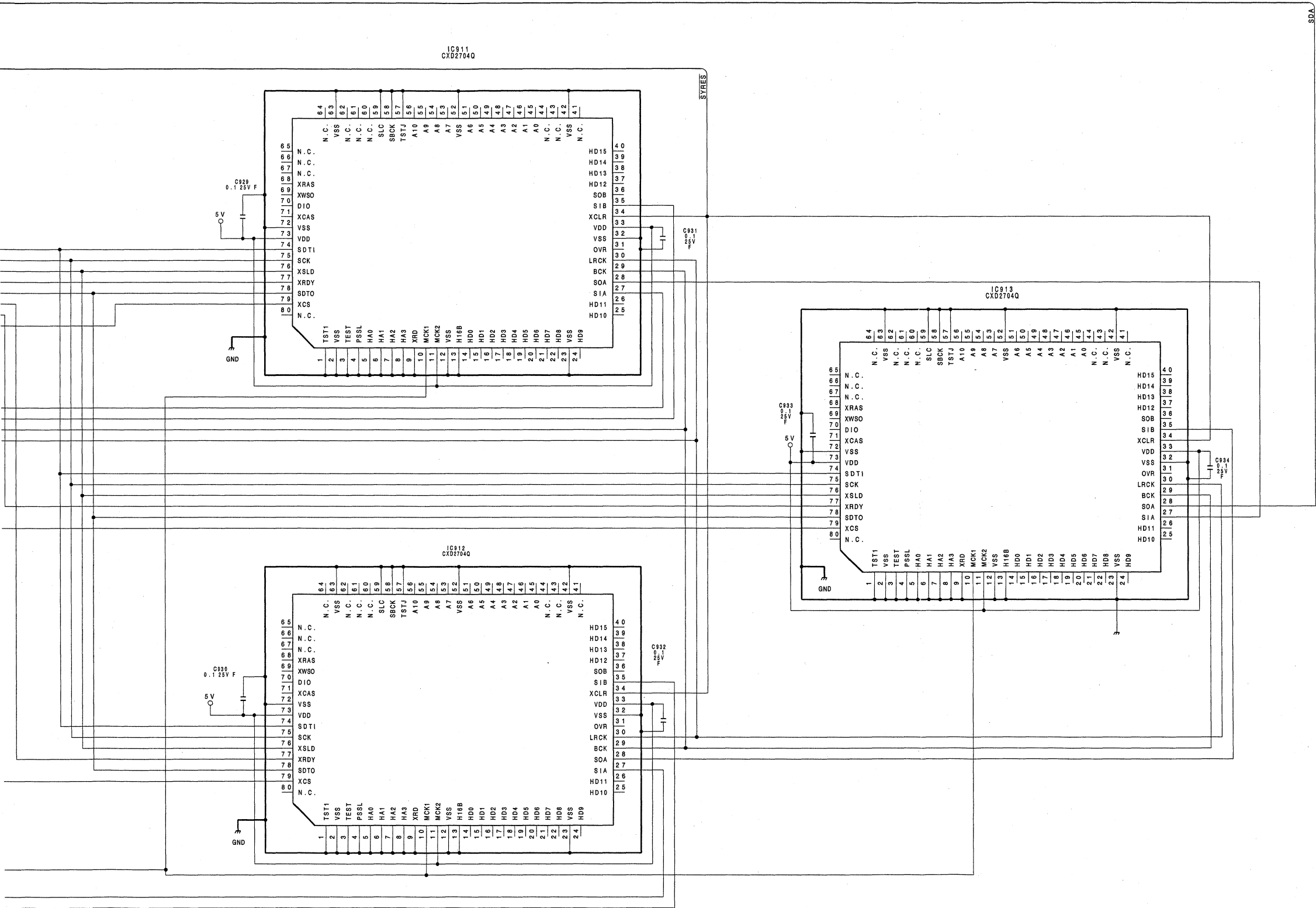


SSP-8 BOARD (8 / 8)  
BOARD NO.1-650-072-11  
PCM-E7700

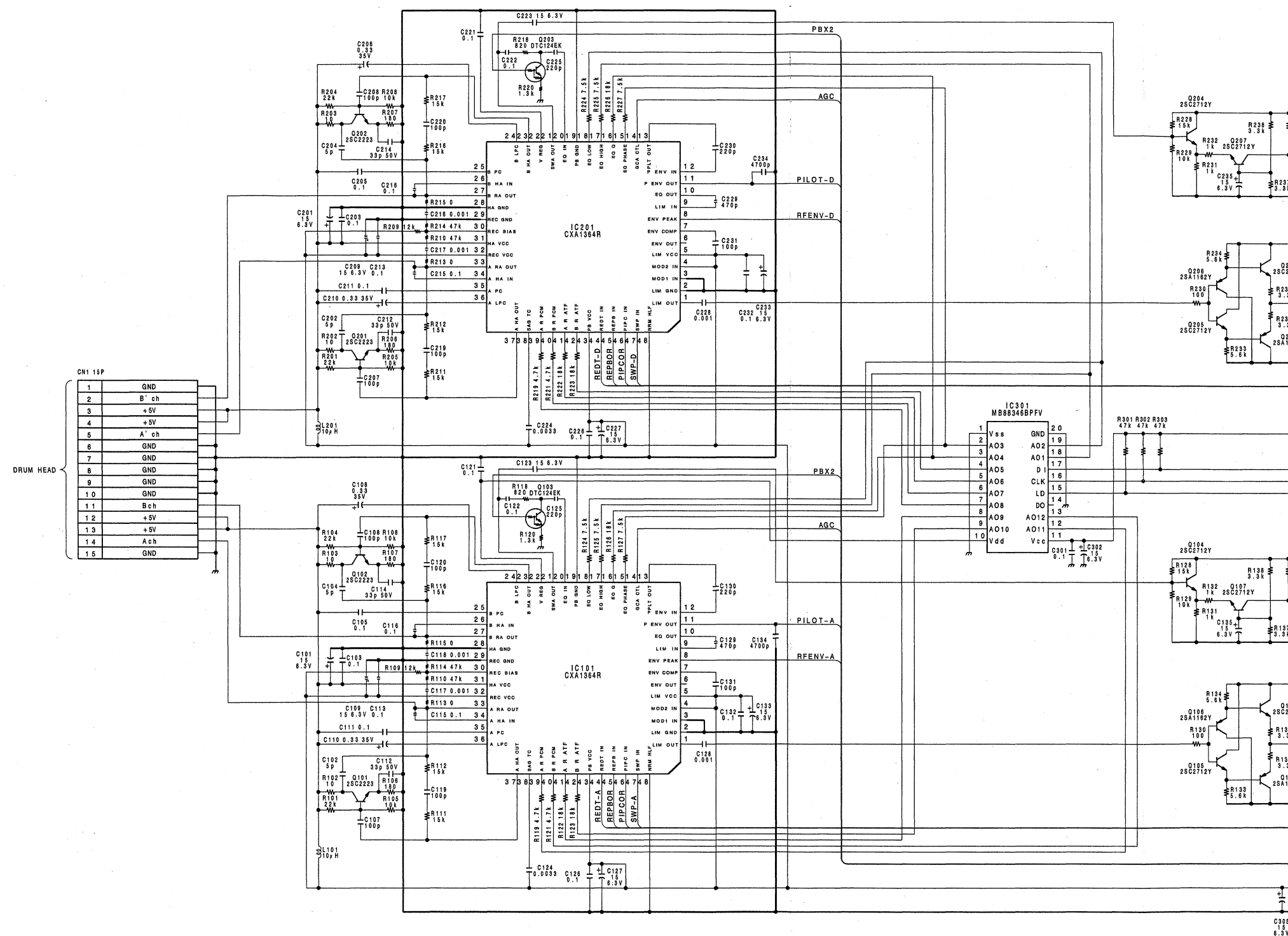


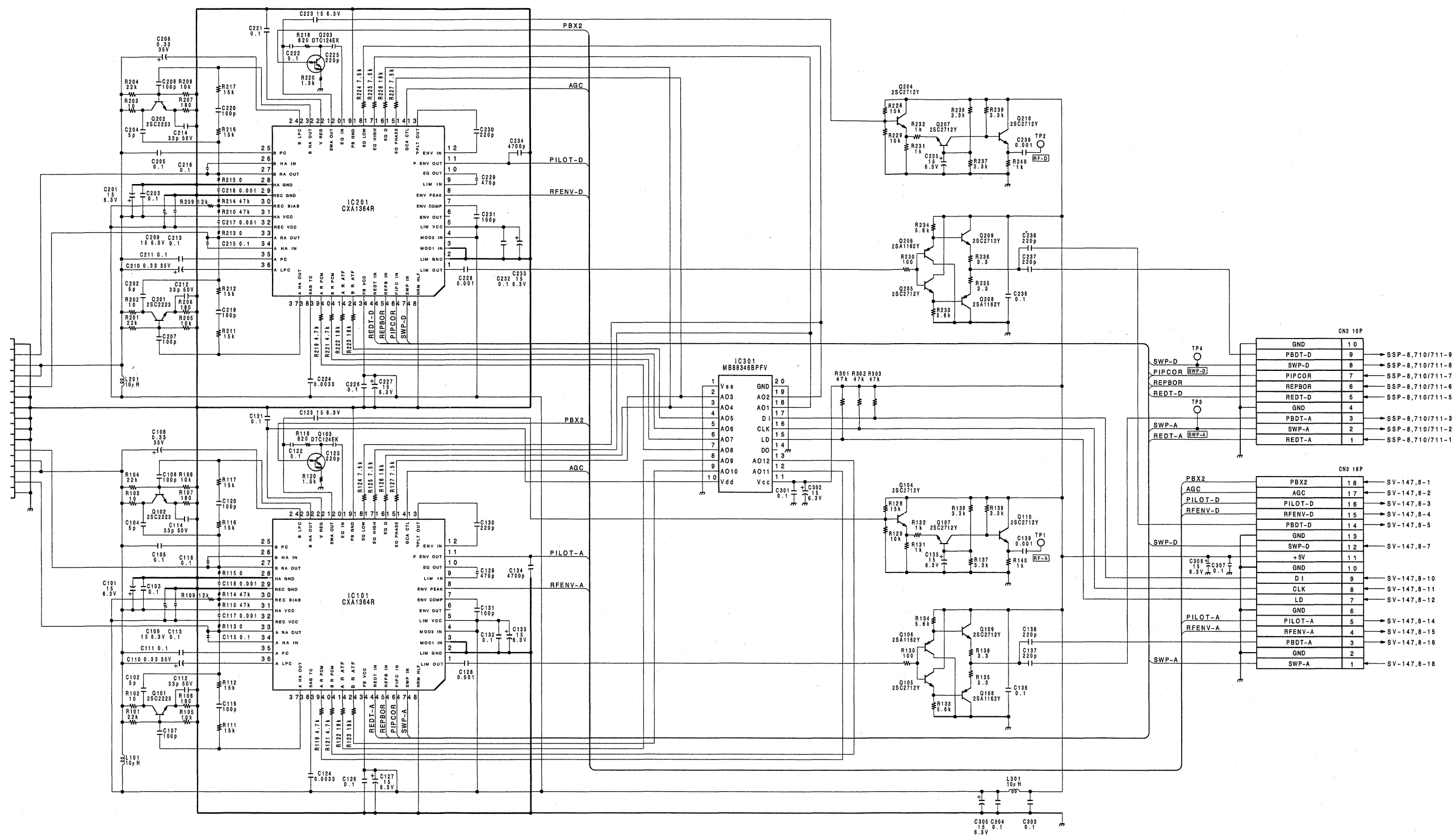
**SSP-8 BOARD (8 / 8)**  
System Control, Signal Processor





SSP-8 BOARD (8 / 8)  
BOARD NO.1-650-072-11,12  
PCM-E7700

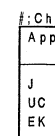
RF-53 BOARD  
RF Amplifier

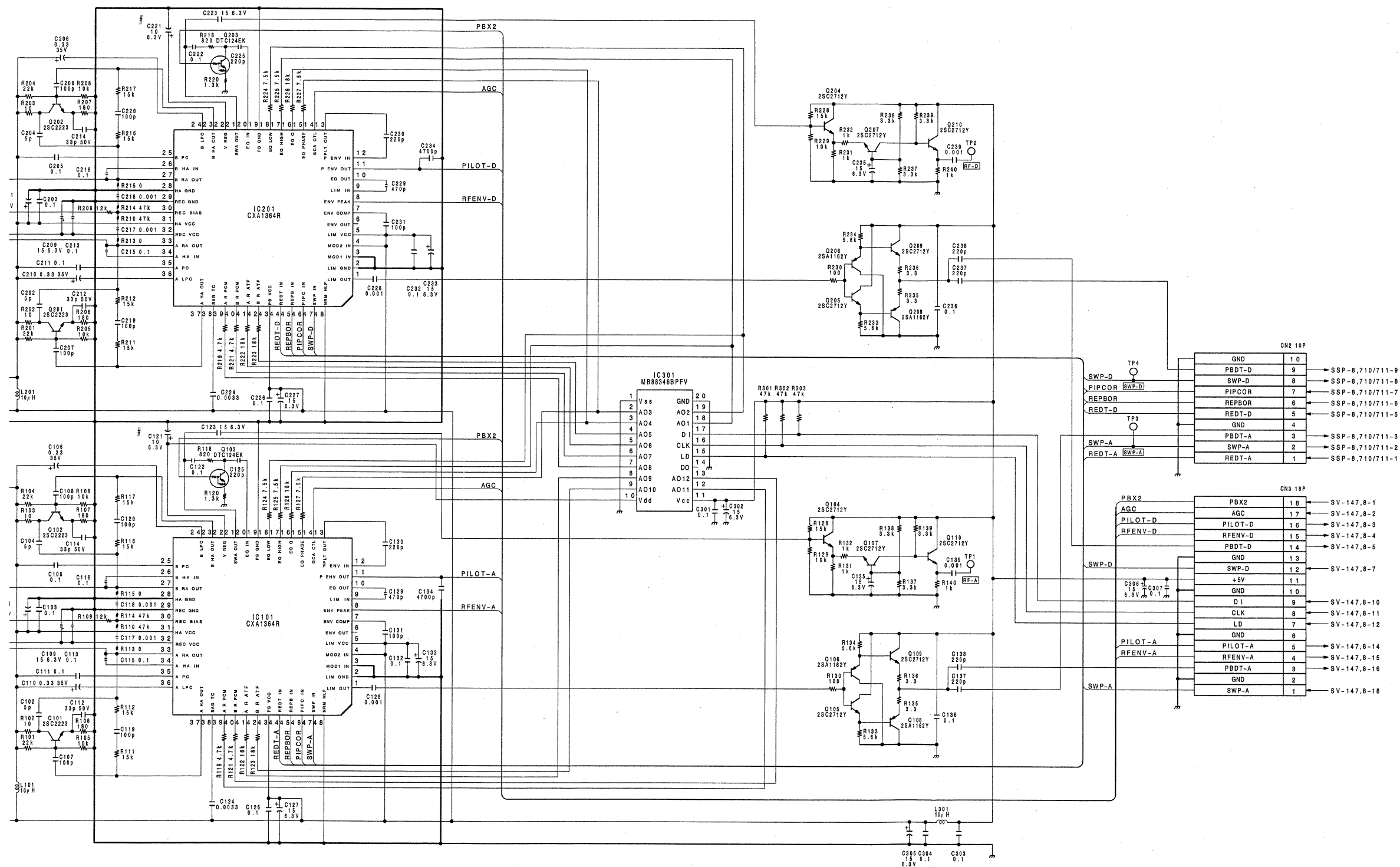


## RF-53 BOARD

BOARD NO.1-650-046-11  
PCM-E7700

## 5





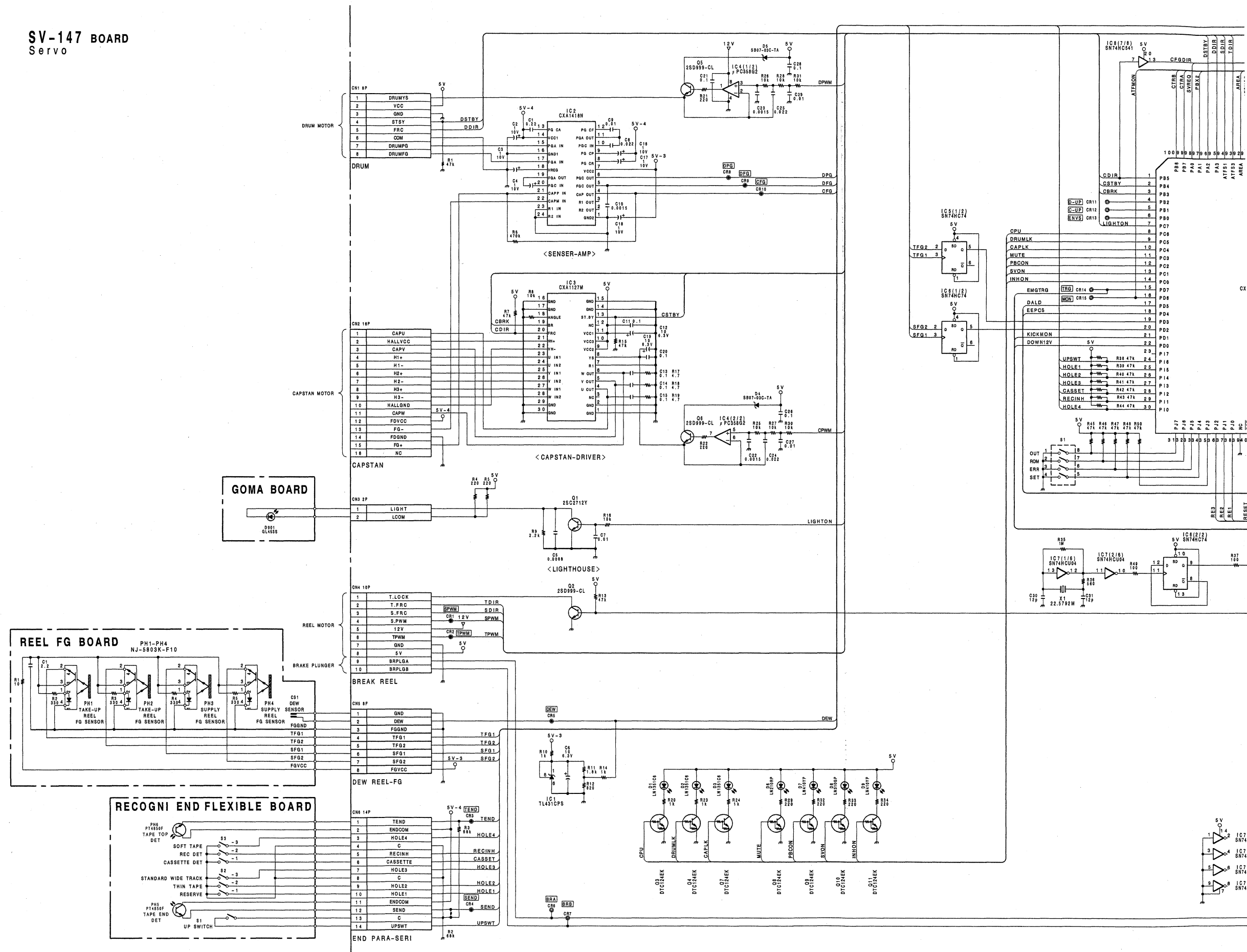
# Changed Information

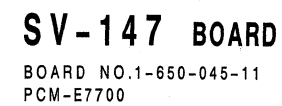
| Applied Serial No.   | Parts that have been changed.                             |
|--|---|
| J ; 10111 and higher<br>UC ; 20056 and higher<br>EK ; 50236 and higher | C121,221<br>0.1 $\mu$ F 25V $\rightarrow$ 10 $\mu$ F 6.3V |

## RF-53 BOARD

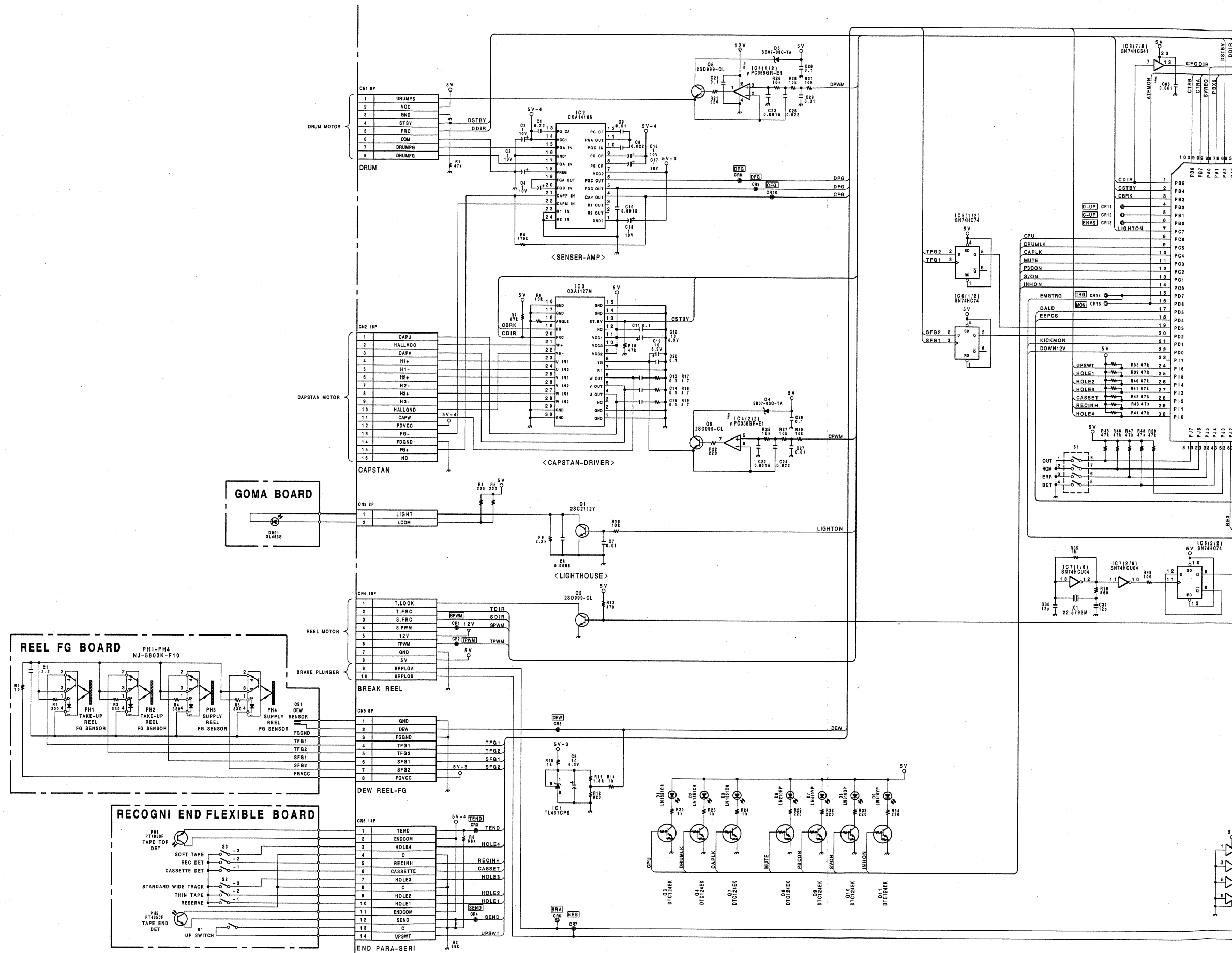
BOARD NO.1-650-046-11,12  
PCM-E7700

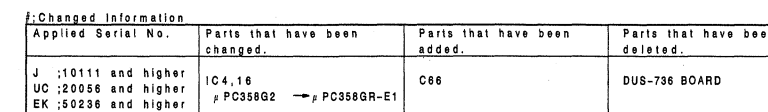
**SV-147 BOARD**  
Servo





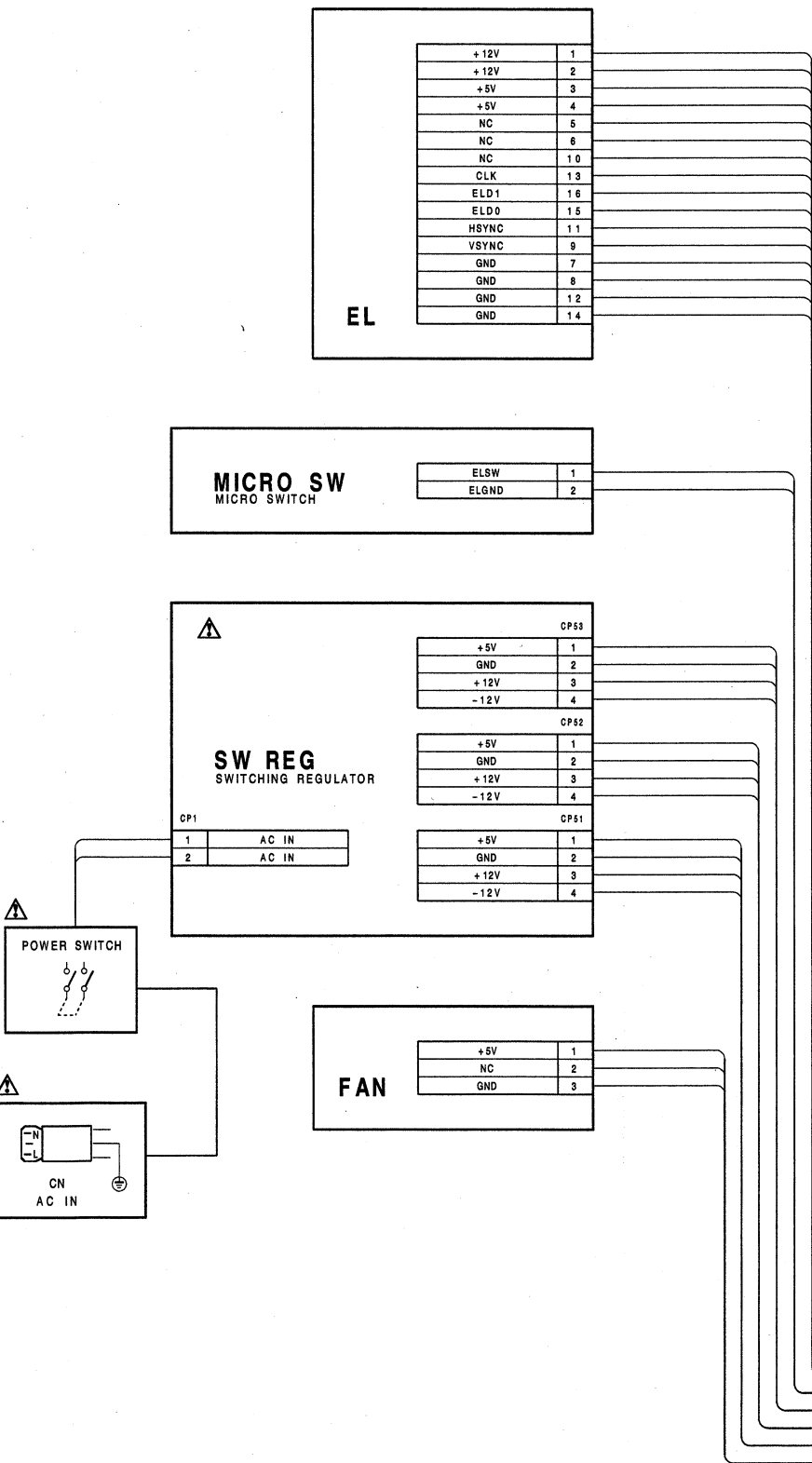


SV-147 BOARD  
Servo



**5 - 1 3**

FRAME WIRING



MD MODULE ( PLAYER )

RF-53 BOARD

| CN2 |        |
|-----|--------|
| 1   | REDT-A |
| 2   | SWP-A  |
| 3   | PBDT-A |
| 4   | GND    |
| 5   | REDT-D |
| 6   | REPBOR |
| 7   | PIPCOR |
| 8   | SWP-D  |
| 9   | PBDT-D |
| 10  | GND    |

SV-147 BOARD

| CN7 |        |
|-----|--------|
| 1   | GND    |
| 2   | INIT   |
| 3   | SVREQ  |
| 4   | SVSCK  |
| 5   | SVSI   |
| 6   | SVSO   |
| 7   | SVRDY  |
| 8   | DREF   |
| 9   | CFGDIR |
| 10  | CFG    |
| 11  | ATSYOR |
| 12  | AREA   |
| 13  | MCLK   |
| 14  | GND    |

| CN11 |      |
|------|------|
| 1    | +5V  |
| 2    | +5V  |
| 3    | GND  |
| 4    | GND  |
| 5    | +12V |
| 6    | GND  |

MD MODULE ( RECORDER )

RF-53 BOARD

| CN2 |        |
|-----|--------|
| 1   | REDT-A |
| 2   | SWP-A  |
| 3   | PBDT-A |
| 4   | GND    |
| 5   | REDT-D |
| 6   | REPBOR |
| 7   | PIPCOR |
| 8   | SWP-D  |
| 9   | PBDT-D |
| 10  | GND    |

SV-147 BOARD

| CN7 |        |
|-----|--------|
| 1   | GND    |
| 2   | INIT   |
| 3   | SVREQ  |
| 4   | SVSCK  |
| 5   | SVSI   |
| 6   | SVSO   |
| 7   | SVRDY  |
| 8   | DREF   |
| 9   | CFGDIR |
| 10  | CFG    |
| 11  | ATSYOR |
| 12  | AREA   |
| 13  | MCLK   |
| 14  | GND    |

| CN11 |      |
|------|------|
| 1    | +5V  |
| 2    | +5V  |
| 3    | GND  |
| 4    | GND  |
| 5    | +12V |
| 6    | GND  |

SSP-8 BOARD

| CN100 |       |
|-------|-------|
| 1     | +12V  |
| 2     | +12V  |
| 3     | +5V   |
| 4     | +5V   |
| 5     | NC    |
| 6     | NC    |
| 7     | NC    |
| 8     | CLK   |
| 9     | ELD1  |
| 10    | ELD0  |
| 11    | HSYNC |
| 12    | VSYNC |
| 13    | GND   |
| 14    | GND   |

| CN104 |       |
|-------|-------|
| 1     | ELSW  |
| 2     | ELGND |

| CN701 |      |
|-------|------|
| 1     | +5V  |
| 2     | GND  |
| 3     | +12V |
| 4     | -12V |

| CN702 |      |
|-------|------|
| 1     | +5V  |
| 2     | GND  |
| 3     | +12V |
| 4     | -12V |

| CN703 |      |
|-------|------|
| 1     | +5V  |
| 2     | GND  |
| 3     | +12V |
| 4     | -12V |

| CN700 |     |
|-------|-----|
| 1     | +5V |
| 2     | NC  |
| 3     | GND |

| CN704 |         |
|-------|---------|
| 1     | D I (+) |
| 2     | D I (-) |
| 3     | GND     |

| CN712 |      |
|-------|------|
| 1     | DACK |
| 2     | DALE |
| 3     | DAD1 |
| 4     | DAD2 |
| 5     | DAMP |
| 6     | XLCK |
| 7     | ADBC |
| 8     | F128 |
| 9     | DTAD |
| 10    | DOWN |
| 11    | HIMP |
| 12    | PH0  |
| 13    | PH1  |
| 14    | GND  |
| 15    | GND  |

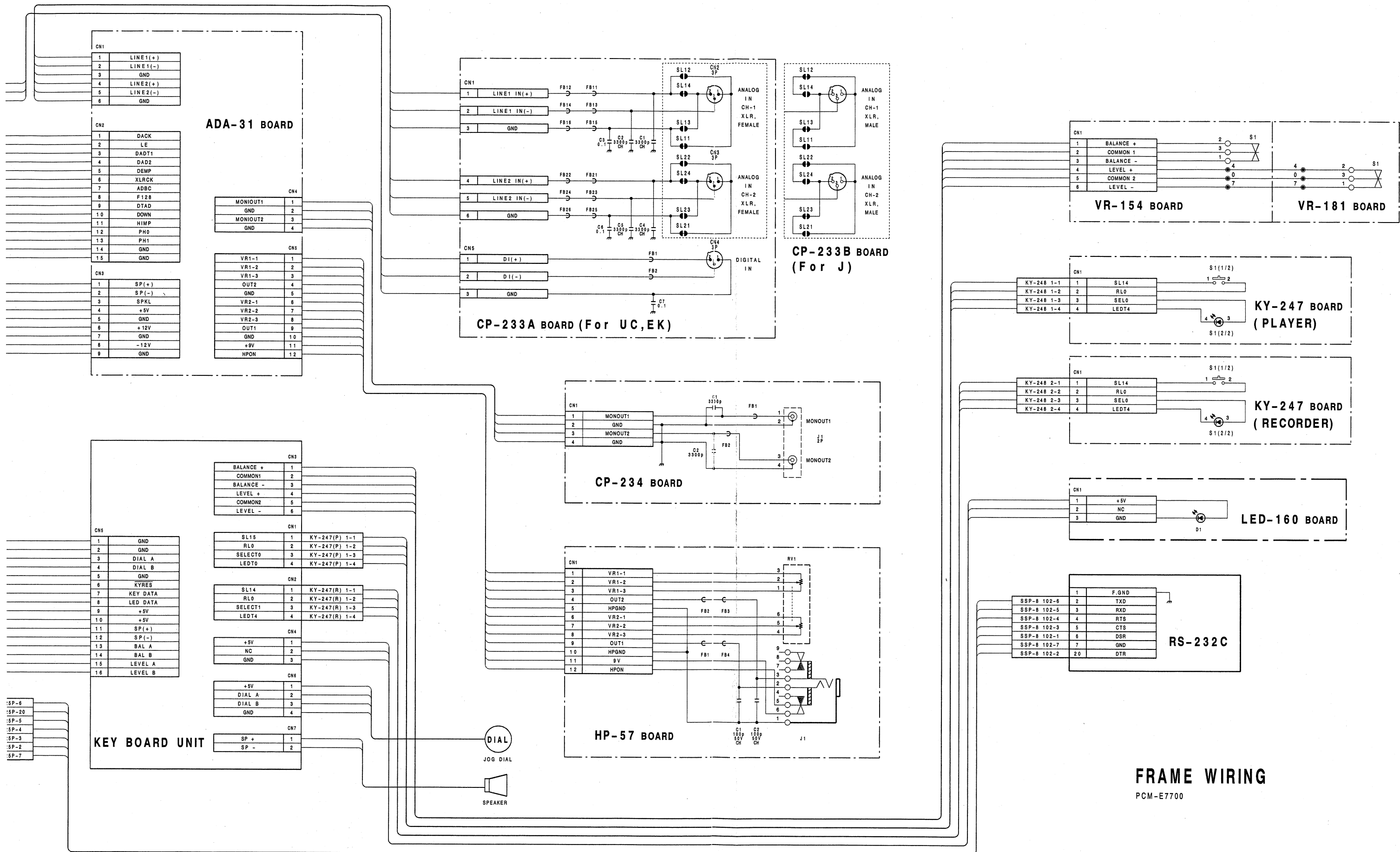
| CN708 |        |
|-------|--------|
| 1     | SP (+) |
| 2     | SP (-) |
| 3     | SPKL   |
| 4     | +5V    |
| 5     | GND    |
| 6     | +12V   |
| 7     | GND    |
| 8     | -12V   |
| 9     | GND    |

| CN101 |          |
|-------|----------|
| 1     | GND      |
| 2     | DIAL A   |
| 3     | DIAL B   |
| 4     | GND      |
| 5     | KYRES    |
| 6     | KEY DATA |
| 7     | LED DATA |
| 8     | VCC      |
| 9     | VCC      |
| 10    | SP (+)   |
| 11    | SP (-)   |
| 12    | BAL A    |
| 13    | BAL B    |
| 14    | LEVEL A  |
| 15    | LEVEL B  |
| 16    | GND      |

| CN102 |     |
|-------|-----|
| 1     | DSR |
| 2     | DTR |
| 3     | CTS |
| 4     | RTS |
| 5     | RXD |
| 6     | TXD |
| 7     | GND |

| RS-232C 25P-6 |                |
|---------------|----------------|
| 1             | RS-232C 25P-6  |
| 2             | RS-232C 25P-20 |
| 3             | RS-232C 25P-5  |
| 4             | RS-232C 25P-4  |
| 5             | RS-232C 25P-3  |
| 6             | RS-232C 25P-2  |
| 7             | RS-232C 25P-7  |

KEY E



## SECTION 6

### SEMICONDUCTOR PIN ASSIGNMENTS

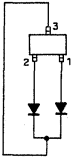
この章の図の中には互換性のないダイオード、トランジスタ、ICが併記されていることがあります。部品を交換をするときには必ず部品表を参照して下さい。  
等価回路はICメーカーのData Bookに従いました。

The chart in this section may sometimes show diodes, transistors, and ICs that are not interchangeable. When replacing a component, be sure to refer to the parts list. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

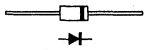
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| <DIODE>           |      |                        |      |                         |      |
| 1S2837 .....      | 6-2  | AM26LS31CNS .....      | 6-3  | SN74HC14ANS .....       | 6-15 |
| 1SS119 .....      | 6-2  | AM26LS32ACNS .....     | 6-3  | SN74HC164ANS .....      | 6-16 |
| CL-150PG-CD ..... | 6-2  | CS5326-KP .....        | 6-3  | SN74HC166ANS .....      | 6-16 |
| CL-150R-CD .....  | 6-2  | CX23065A .....         | 6-4  | SN74HC21ANS .....       | 6-16 |
| CL-150Y-CD .....  | 6-2  | CXA1127AM .....        | 6-4  | SN74HC257ANS .....      | 6-16 |
| DA204U .....      | 6-2  | CXA1364R .....         | 6-5  | SN74HC32ANS .....       | 6-16 |
| EC10DS2 .....     | 6-2  | CXA1418N .....         | 6-4  | SN74HC541ANS .....      | 6-16 |
| GL-1EG111 .....   | 6-2  | CXD1102Q .....         | 6-6  | SN74HC574ANS .....      | 6-17 |
| GL453 .....       | 6-2  | CXD2605R .....         | 6-7  | SN74HC74ANS .....       | 6-17 |
| GL453S .....      | 6-2  | CXD2704Q .....         | 6-8  | SN74HCU04ANS .....      | 6-15 |
| LA-301VB .....    | 6-2  | CXD8864Q .....         | 6-9  | SN74LS03NS .....        | 6-17 |
| LN1351C6 .....    | 6-2  | CXK581100TM-10LL ..... | 6-8  | SN74LS624NS .....       | 6-17 |
| LN210RP .....     | 6-2  | CXK58257ATM-70LL ..... | 6-10 | ST93CS56M1 .....        | 6-17 |
| LN310GP .....     | 6-2  | HD14053BFP .....       | 6-10 | TA7291F .....           | 6-17 |
| LN410YP .....     | 6-2  | LB1638M .....          | 6-11 | TA7809S .....           | 6-18 |
| MA152WK .....     | 6-2  | LT1134CS .....         | 6-10 | TC4052BFHB .....        | 6-18 |
| NSQ03A04 .....    | 6-2  | M6M80021FP .....       | 6-11 | TC4S66F .....           | 6-18 |
| SB07-03C .....    | 6-2  | MB3771PF .....         | 6-11 | TC7S00F .....           | 6-15 |
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| 2SA1162Y .....    | 6-2  | MB8421-90LPFQ .....    | 6-11 | TC7SU04F .....          | 6-18 |
| 2SB1323 .....     | 6-2  | MB8431-90LPFQ .....    | 6-12 | TD62381F .....          | 6-18 |
| 2SC2223 .....     | 6-2  | MB88346BPFV .....      | 6-12 | TL431CPS .....          | 6-18 |
| 2SC2712 .....     | 6-2  | MC14053BF .....        | 6-10 | TL7705CPS-B .....       | 6-18 |
| 2SC2712Y .....    | 6-2  | MSM5832RS .....        | 6-13 | TMS27C240-12JL .....    | 6-19 |
| 2SD773 .....      | 6-2  | MSM6338MS-K .....      | 6-13 | TMS44400-80SD .....     | 6-19 |
| 2SD999-CLCK ..... | 6-2  | NJL5803K-F10 .....     | 6-13 | UPC358G2 .....          | 6-19 |
| DTA124EK .....    | 6-2  | NJM2073M .....         | 6-13 | UPC78L05T .....         | 6-19 |
| DTC124EK .....    | 6-2  | NJM4556M-A .....       | 6-13 | UPD4702G .....          | 6-19 |
| PT4850F .....     | 6-2  | NJM4560M .....         | 6-14 | UPD70216L .....         | 6-20 |
| THS117 .....      | 6-2  | NJM7805FA .....        | 6-14 | UPD71054GB-10-3B4 ..... | 6-21 |
| <IC>              |      |                        |      |                         |      |
| 74F244SJ .....    | 6-3  | NJM7809FA .....        | 6-14 | UPD71055GB-10-3B4 ..... | 6-21 |
|                   |      | NJM78L05A .....        | 6-14 | UPD71059GB-10-3B4 ..... | 6-23 |
|                   |      | NJM7905FA .....        | 6-14 | UPD71101GD-10-5BB ..... | 6-22 |
|                   |      | NJM7909FA .....        | 6-14 | UPD72020GC-8-3B6 .....  | 6-24 |
|                   |      | PALCE16V8Q-25JC .....  | 6-14 | XRA17809T .....         | 6-14 |
|                   |      | PCM56P .....           | 6-14 |                         |      |
|                   |      | SC7S00F .....          | 6-15 |                         |      |
|                   |      | SN74HC00ANS .....      | 6-15 |                         |      |
|                   |      | SN74HC02ANS .....      | 6-15 |                         |      |
|                   |      | SN74HC04ANS .....      | 6-15 |                         |      |
|                   |      | SN74HC08ANS .....      | 6-15 |                         |      |
|                   |      | SN74HC126ANS .....     | 6-15 |                         |      |
|                   |      | SN74HC139ANS .....     | 6-15 |                         |      |

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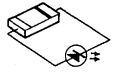
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MA152WK



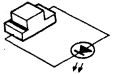
1SS119



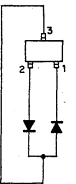
CL-150PG-CD ; GREEN  
CL-150R-CD ; RED



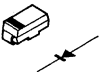
CL-150Y-CD ; AMBER



DA204U



EC10DS2  
NSQ03A04



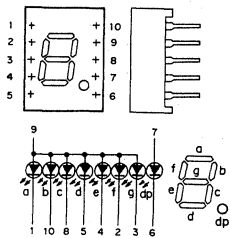
GL-1EG111 ; YELLOWISH GREEN



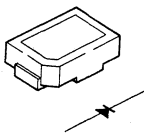
GL453 ; INFRARED  
GL453S ; INFRARED



LA-301VB ; RED



LN1351C6



LN210RP ; RED  
LN310GP ; GREEN  
LN410YP ; YELLOW

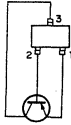


SB07-03C

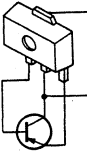


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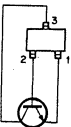
2SA1162Y



2SB1323



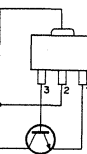
2SC2223  
2SC2712  
2SC2712Y



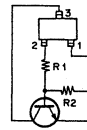
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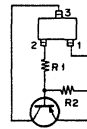
2SD999-CLCK



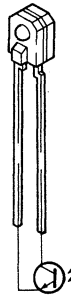
DTA124EK (R1 = 22K, R2 = 22K)



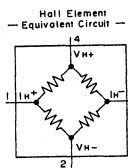
DTC124EK (R1 = 22K, R2 = 22K)



PT4850F

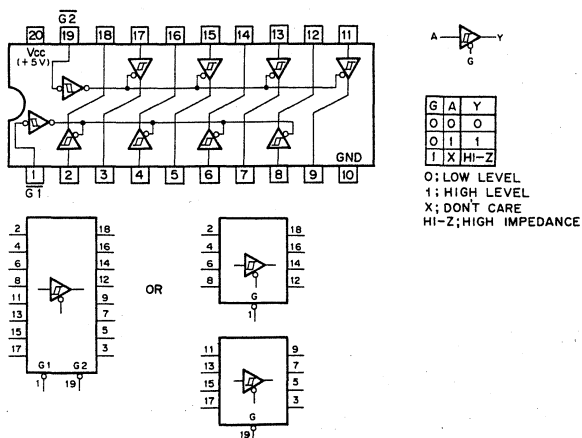


THS117

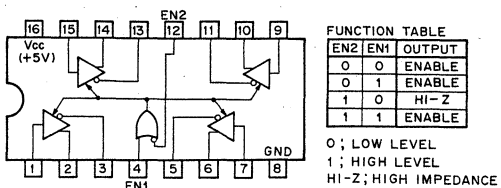


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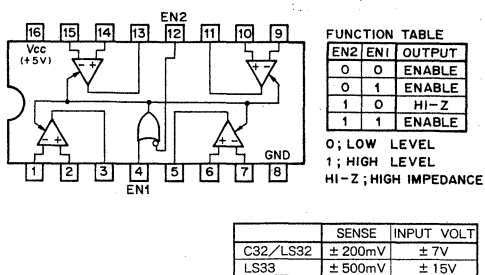
## 74F244SJ (NS) FLAT PACKAGE

TTL 3-STATE SCHMITT TRIGGER BUFFER/DRIVER  
- TOP VIEW -

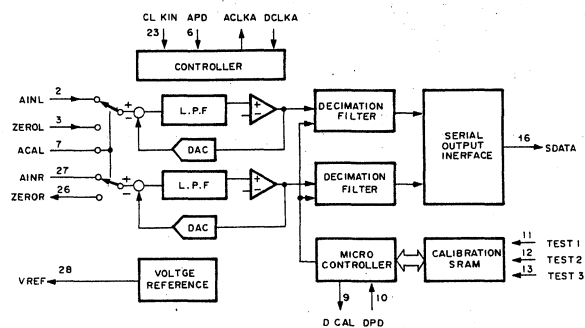
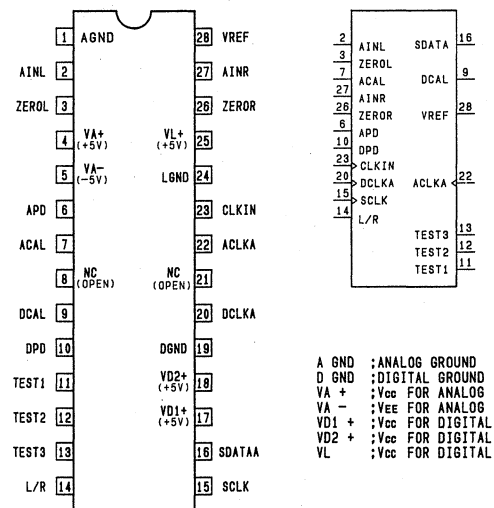
## AM26LS31CNS (TI) FLAT PACKAGE

HIGH SPEED DIFFERENTIAL LINE DRIVER  
- TOP VIEW -

## AM26LS32ACNS (TI) FLAT PACKAGE

HIGH SPEED DIFFERENTIAL LINE RECEIVER  
- TOP VIEW -

## CS5326-KP (ASAHIKASEI)

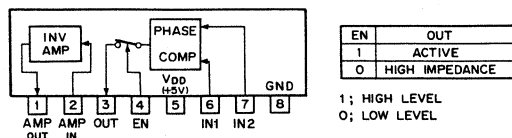
16-BIT OVERSAMPLING STEREO A/D CONVERTER  
- TOP VIEW -

**INPUT**  
 ACAL : ANALOG CALIBRATION NORMALLY, CONNECT TO DCAL PIN.  
 AINL : L CHANNEL ANALOG INPUT  
 AINR : R CHANNEL ANALOG INPUT  
 APD : ANALOG POWER DOWN (H = POWER DOWN MODE) NORMALLY, CONNECT TO DPD PIN.  
 CLKIN : MASTER CLOCK  
 DCLKA : DIGITAL SYSTEM CLOCK  
 CONNECT TO ACLKA PIN.  
 DPD : DIGITAL POWER DOWN (H = POWER DOWN MODE)  
 L/R : INPUT CHANNEL SELECTION  
 DATA CHANNEL OUTPUT FROM SDATA PIN IS SELECTED.  
 (H = L CHANNEL DATA, L = R CHANNEL DATA)  
 SCLK : SERIAL DATA OUTPUT CLOCK  
 TST1~TST3 : TEST (CONNECT TO DGND)  
 ZEROL : L CHANNEL ZERO LEVEL INPUT  
 ZEROR : R CHANNEL ZERO LEVEL INPUT

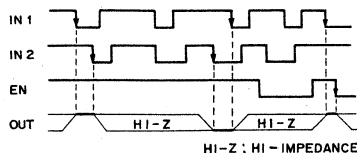
**OUTPUT**  
 ACLKA : ANALOG SYSTEM CLOCK (CONNECT TO DCLKA PIN.)  
 DCAL : DIGITAL CALIBRATION  
 SDATA : SERIAL DATA OUTPUT  
 DATA IS OUTPUT IN ORDER FROM MSB IN 2ND COMPLEMENT.  
 VREF : REFERENCE VOLTAGE SUPPLY OF -3.6V

### CX23065A (SONY)

N-MOS PHASE COMPARATOR WITH INVERSION AMPLIFIER  
- PRINTED SIDE VIEW -

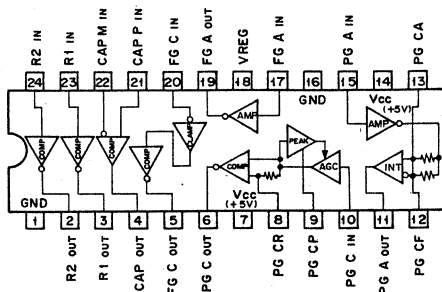


#### TIMING CHART



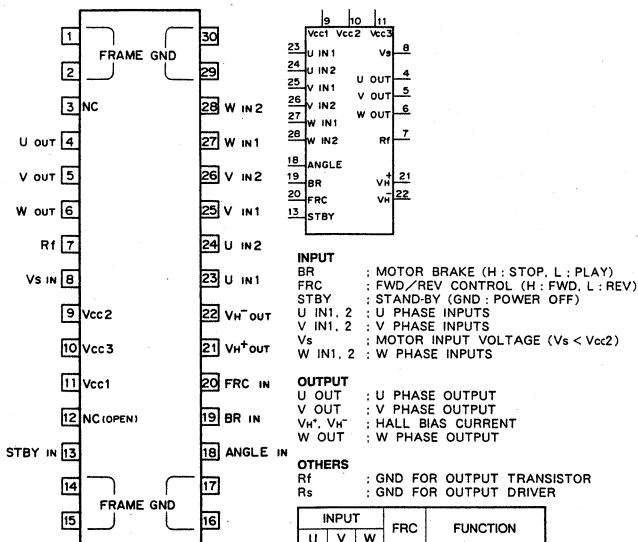
### CXA1418N (SONY)

SENSOR AMPLIFIER FOR R-DAT  
- TOP VIEW -



### CXA1127AM (SONY) FLAT PACKAGE

CAPSTAN MOTOR DRIVER  
- TOP VIEW -

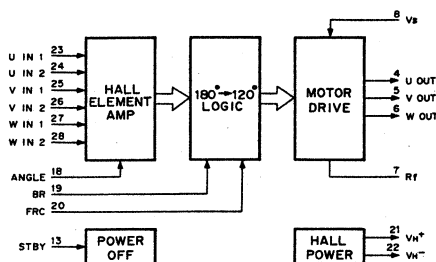


#### NOTE :

|      |               |               |
|------|---------------|---------------|
| Vcc1 | +4 to +7V     | OPEN          |
| Vcc2 | +4 to +12V    | +6 to +12V    |
| Vcc3 | short to Vcc1 | short to Vcc2 |
| Vs   | Vs < Vcc2     | Vs < Vcc2     |

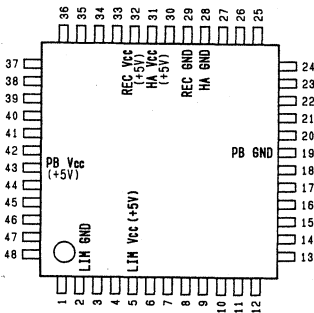
| INPUT |   |   | FRC | FUNCTION    |
|-------|---|---|-----|-------------|
| U     | V | W | 0   | W → V PHASE |
| H     | H | L | 1   | V → W PHASE |
| H     | L | L | 0   | W → U PHASE |
| L     | L | L | 1   | U → W PHASE |
| L     | L | H | 0   | V → W PHASE |
| L     | H | L | 1   | U → V PHASE |
| H     | L | H | 0   | V → U PHASE |
| H     | L | L | 1   | U → V PHASE |
| L     | H | H | 0   | U → W PHASE |
| L     | H | L | 1   | W → U PHASE |

H : HIGH LEVEL  
L : LOW LEVEL  
1 : 2.0 to Vcc2  
0 : 0 to 0.3V





## CXA1364R (SONY)

REC/PB AMP FOR R-DAT  
- TOP VIEW -

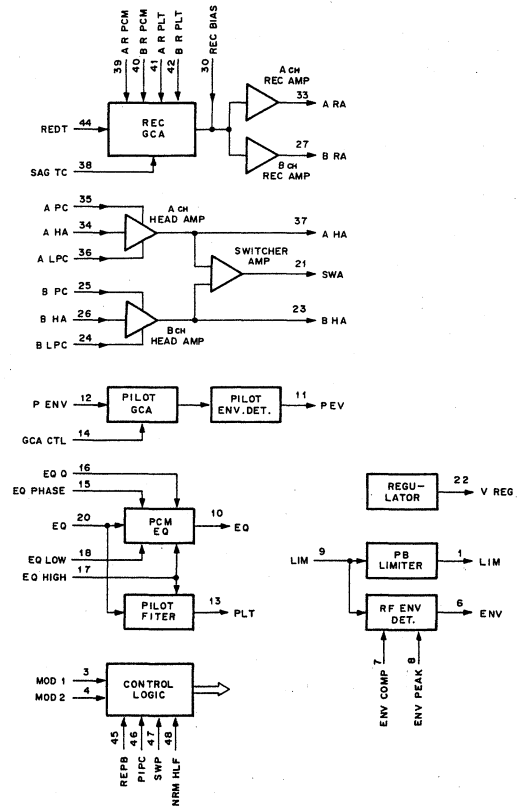
(Vcc = +5V)

| PIN No. | I/O | SIGNAL   | PIN No. | I/O | SIGNAL   | PIN No. | I/O | SIGNAL   | PIN No. | I/O | SIGNAL   |
|---------|-----|----------|---------|-----|----------|---------|-----|----------|---------|-----|----------|
| 1       | O   | LIM OUT  | 13      | O   | PLT OUT  | 25      | -   | B PC     | 37      | O   | A HA OUT |
| 2       | -   | LIM GND  | 14      | I   | GCA CTL  | 26      | I   | B HA IN  | 38      | -   | SAG TC   |
| 3       | I   | MOD1 IN  | 15      | -   | EQ PHASE | 27      | O   | B RA OUT | 39      | -   | A R PCM  |
| 4       | I   | MOD2 IN  | 16      | -   | EQ Q     | 28      | -   | HA GND   | 40      | -   | B R PCM  |
| 5       | -   | LIM Vcc  | 17      | -   | EQ HIGH  | 29      | -   | REC GND  | 41      | -   | A R PLT  |
| 6       | O   | ENV OUT  | 18      | -   | EQ LOW   | 30      | I   | REC BIAS | 42      | -   | B R PLT  |
| 7       | -   | ENV COMP | 19      | -   | PB GND   | 31      | -   | HA Vcc   | 43      | -   | PB Vcc   |
| 8       | -   | ENV PEAK | 20      | I   | EQ IN    | 32      | -   | REC Vcc  | 44      | I   | REDT IN  |
| 9       | I   | LIM IN   | 21      | O   | SWA OUT  | 33      | O   | A RA OUT | 45      | I   | REPB IN  |
| 10      | O   | EQ OUT   | 22      | O   | V REG    | 34      | I   | A HA IN  | 46      | I   | PIPC IN  |
| 11      | O   | P EV OUT | 23      | O   | B HA OUT | 35      | -   | A PC     | 47      | I   | SWP IN   |
| 12      | I   | P ENV IN | 24      | -   | B LPC    | 36      | -   | A LPC    | 48      | I   | NRM HLF  |

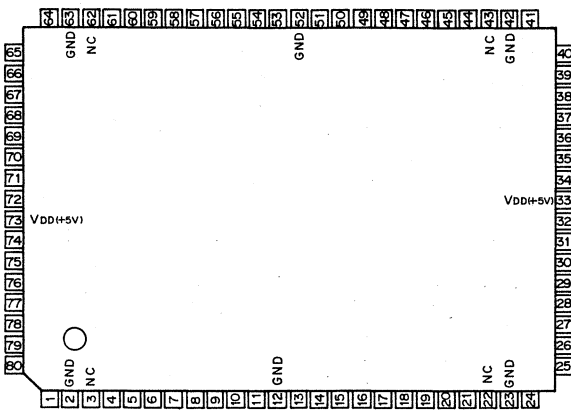
**INPUT**  
A HA IN : Ach HEAD AMPLIFIER INPUT  
B HA IN : Bch HEAD AMPLIFIER INPUT  
EQ IN : PCM EQ INPUT  
GCA CTL : PILOT GCA GAIN CONTROL VOLTAGE INPUT  
LIM IN : PB LIMITER AND RF ENVELOPE DETECTOR INPUT  
MOD1 IN, MOD2 IN : OPERATION MODE SWITCHING LOGIC INPUT  
NRM HLF : NORMAL/HALF SPEED SWITCHING SIGNAL INPUT  
P ENV IN : PILOT GCA INPUT  
PIPC IN : PCM/PILOT REC AREA SWITCHING SIGNAL INPUT  
REC BIAS : REC FINAL STAGE CURRENT AMPLIFIER INPUT  
REDT IN : REC SIGNAL INPUT  
REPB IN : REC/PB SWITCHING SIGNAL INPUT  
SWP IN : A/B SWITCHING SIGNAL INPUT

**OUTPUT**  
A HA OUT : Ach HEAD AMPLIFIER OUTPUT  
A RA OUT : Ach REC AMPLIFIER OUTPUT  
B HA OUT : Bch HEAD AMPLIFIER OUTPUT  
B RA OUT : Bch REC AMPLIFIER OUTPUT  
ENV OUT : RF ENVELOPE DETECTOR OUTPUT  
EQ OUT : PCM EQUALIZER OUTPUT  
LIM OUT : PB LIMITER OUTPUT  
P EV OUT : PILOT ENVELOPE OUTPUT  
PLT OUT : PILOT FILTER OUTPUT  
SWA OUT : SWITCH AMPLIFIER OUTPUT  
V REG : REGULATOR OUTPUT

**OTHERS**  
A LPC : CONNECTION PIN FOR SMOOTHING CAPACITOR OF Ach HEAD AMPLIFIER DC SERVO  
A PC : CONNECTION PIN FOR EMITTER BYPASS CAPACITOR OF Ach HEAD AMPLIFIER FIRST STAGE GROUNDED EMITTER TRANSISTOR  
A R PCM : CONNECTION PIN FOR RESISTOR DETERMINING Ach REC CURRENT  
A R PLT : CONNECTION PIN FOR RESISTOR DETERMINING, ALONG WITH RESISTOR OF PIN 39, Ach PILOT SIGNAL REC CURRENT  
B LPC : CONNECTION PIN FOR DC SMOOTHING CAPACITOR OF Bch HEAD AMPLIFIER DC SERVO  
B PC : CONNECTION PIN FOR EMITTER BYPASS CAPACITOR OF Bch HEAD AMPLIFIER FIRST STAGE GROUNDED EMITTER TRANSISTOR  
B R PCM : CONNECTION PIN FOR RESISTOR DETERMINING Bch REC CURRENT  
B R PLT : CONNECTION PIN FOR RESISTOR DETERMINING, ALONG WITH RESISTOR OF PIN 40, Bch PILOT SIGNAL REC CURRENT  
ENV COMP : FOR CONTROLLING RF ENVELOPE THRESHOLD VOLTAGE  
ENV PEAK : CONNECTION PIN OF THE CAPACITOR FOR RF PEAK HOLD  
EQ HIGH : RESISTOR OR CURRENT SOURCE IS CONNECTED FOR DETERMINING PCM EQ HIGH BAND PEAK FREQUENCY AND PILOT FILTER CUT OFF FREQUENCY  
EQ LOW : RESISTOR OR CURRENT SOURCE IS CONNECTED FOR DETERMINING PCM EQ LOW BAND CHARACTERISTIC  
EQ PHASE : RESISTOR OR CURRENT SOURCE IS CONNECTED FOR DETERMINING PCM EQ PHASE CHARACTERISTIC  
EQ Q : RESISTOR OR CURRENT SOURCE IS CONNECTED FOR DETERMINING PCM EQ HIGH BAND PEAK GAIN  
SAG TC : CONNECTION PIN FOR CAPACITOR CORRECTING THE REC WAVEFORM SAG



CXD1102Q (SONY) FLAT PACKAGE  
C-MOS EL DISPLAY UNIT CONTROLLER  
- TOP VIEW -



| PIN NO. | I/O | SYMBOL | PIN NO. | I/O | SYMBOL | PIN NO. | I/O | SYMBOL | PIN NO. | I/O | SYMBOL |
|---------|-----|--------|---------|-----|--------|---------|-----|--------|---------|-----|--------|
| 1       | I/O | AD04   | 17      | O   | MA02   | 33      |     | VDD    | 49      | I/O | MDO1   |
| 2       |     | GND    | 18      | O   | MA03   | 34      | I/O | MD14   | 50      | I/O | MDO0   |
| 3       |     | NC     | 19      | O   | MA04   | 35      | I/O | MD13   | 51      | I   | TEST1  |
| 4       | I/O | AD03   | 20      | O   | MA05   | 36      | I/O | MD12   | 52      |     | GND    |
| 5       | I/O | AD02   | 21      | O   | MA06   | 37      | I/O | MD11   | 53      | I   | CK     |
| 6       | I/O | AD01   | 22      |     | NC     | 38      | I/O | MD10   | 54      | I   | TEST2  |
| 7       | I/O | AD00   | 23      |     | GND    | 39      | I/O | MDO9   | 55      | I   | VDC2   |
| 8       | I   | WPI1   | 24      | O   | MA07   | 40      | I/O | MDO8   | 56      | I   | VDC1   |
| 9       | I   | WPI2   | 25      | O   | MA08   | 41      | I/O | MDO7   | 57      | I   | VDC0   |
| 10      | O   | WPO    | 26      | O   | MA09   | 42      |     | GND    | 58      | O   | VD     |
| 11      | O   | MWE    | 27      | O   | MA10   | 43      |     | NC     | 59      | O   | HD     |
| 12      |     | GND    | 28      | O   | MA11   | 44      | I/O | MDO6   | 60      | O   | DIN    |
| 13      | O   | MCE    | 29      | O   | MA12   | 45      | I/O | MDO5   | 61      | I   | DBIN   |
| 14      | O   | MOE    | 30      | O   | MA13   | 46      | I/O | MDO4   | 62      |     | NC     |
| 15      | O   | MA00   | 31      | O   | MA14   | 47      | I/O | MDO3   | 63      |     | GND    |
| 16      | O   | MA01   | 32      | I/O | MA15   | 48      | I/O | MDO2   | 64      | O   | CKX2   |

MA00-MA14; MEMORY ADDRESS OUTPUTS  
MD00-MA15; MEMORY DATA INPUTS/OUTPUTS  
AD00-AD15; MEMORY ADDRESS INPUTS/  
MEMORY DATA INPUTS/OUTPUTS

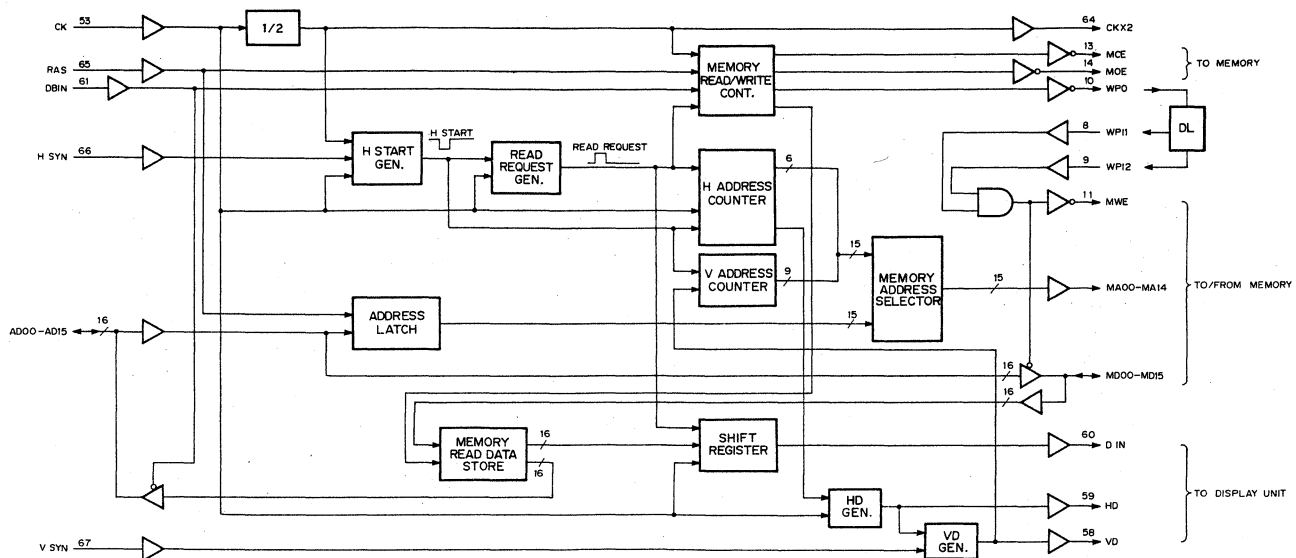
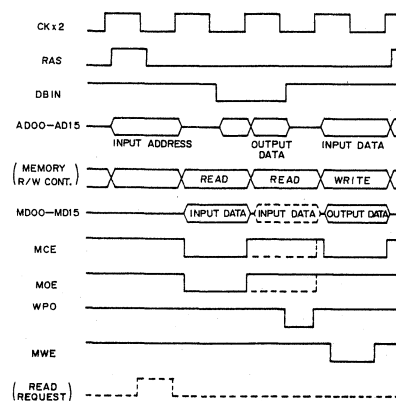
CKX2; 1/2 CK OUTPUT  
RAS; READ ENABLE INPUT  
DBIN; WRITE ENABLE INPUT  
HSYN; H COUNTER START PULSE INPUT  
VSYN; V COUNTER START PULSE INPUT

MCB; MEMORY CHIP ENABLE INPUT  
MOE; MEMORY OUTPUT ENABLE INPUT  
MWE; MEMORY WRITE ENABLE INPUT  
WPO; WRITE MODE OUTPUT  
WPI1, WPI2; DELAYED WPO INPUTS

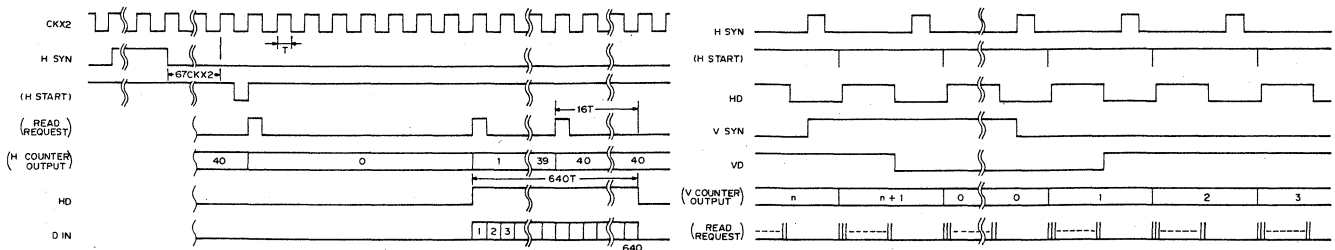
DIN; DISPLAY DATA OUTPUT  
HD; DISPLAY H SYNC OUT  
VD; DISPLAY V SYNC OUT

|    |      |       |    |
|----|------|-------|----|
| 7  | AD00 | WPI1  | 8  |
| 6  | AD01 | WPI2  | 9  |
| 5  | AD02 | WPO   | 10 |
| 4  | AD03 | MWE   | 11 |
| 3  | AD04 | MA02  | 12 |
| 2  | AD05 | MCE   | 13 |
| 1  | AD06 | MOE   | 14 |
| 78 | AD07 | MA00  | 15 |
| 77 | AD08 | MA01  | 16 |
| 76 | AD09 | MA02  | 17 |
| 75 | AD10 | MA03  | 18 |
| 74 | AD11 | MA04  | 19 |
| 73 | AD12 | MA05  | 20 |
| 72 | AD13 | MA06  | 21 |
| 71 | AD14 | MA07  | 22 |
| 70 | AD15 | MA08  | 23 |
| 69 | AD15 | MA09  | 24 |
| 68 | RAS  | MA10  | 25 |
| 67 | DBIN | MA11  | 26 |
| 66 | HSYN | MA12  | 27 |
| 65 | VSYN | MA13  | 28 |
| 64 |      | MA14  | 29 |
| 50 |      | MDO0  | 30 |
| 49 |      | MDO1  | 31 |
| 48 |      | MDO2  | 32 |
| 47 |      | MDO3  | 33 |
| 46 |      | MDO4  | 34 |
| 45 |      | MDO5  | 35 |
| 44 |      | MDO6  | 36 |
| 43 |      | MDO7  | 37 |
| 42 |      | MDO8  | 38 |
| 41 |      | MDO9  | 39 |
| 40 |      | MDO10 | 40 |
| 39 |      | MDO11 | 41 |
| 38 |      | MDO12 | 42 |
| 37 |      | MDO13 | 43 |
| 36 |      | MDO14 | 44 |
| 35 |      | MDO15 | 45 |
| 34 |      |       | 46 |
| 33 |      |       | 47 |
| 32 |      |       | 48 |
| 31 |      |       | 49 |
| 30 |      |       | 50 |
| 29 |      |       | 51 |
| 28 |      |       | 52 |
| 27 |      |       | 53 |
| 26 |      |       | 54 |
| 25 |      |       | 55 |
| 24 |      |       | 56 |
| 23 |      |       | 57 |
| 22 |      |       | 58 |
| 21 |      |       | 59 |
| 20 |      |       | 60 |
| 19 |      |       | 61 |
| 18 |      |       | 62 |
| 17 |      |       | 63 |
| 16 |      |       | 64 |

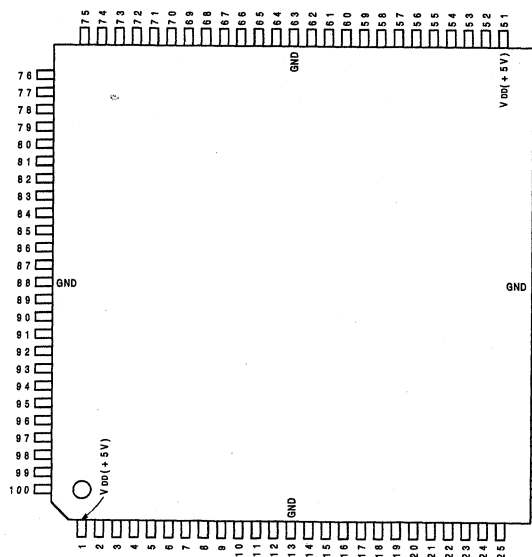
TIMING CHART (MEMORY CONTROL)



TIMING CHART (DISPLAY DATA READ SEQUENCE)



CXD2605R (SONY) FLAT PACKAGE  
C-MOS SIGNAL PROCESSOR FOR R-DAT  
- TOP VIEW -



| (VDD = +5V) |     |        |         |     |        |         |     |        |         |     |        |
|-------------|-----|--------|---------|-----|--------|---------|-----|--------|---------|-----|--------|
| PIN No.     | I/O | SIGNAL | PIN No. | I/O | SIGNAL | PIN No. | I/O | SIGNAL | PIN No. | I/O | SIGNAL |
| 1           | -   | VDD    | 26      | O   | CLK    | 51      | -   | VDD    | 76      | I   | DADO   |
| 2           | O   | A10    | 27      | I   | MUTE   | 52      | O   | TX     | 77      | O   | ADD1   |
| 3           | O   | A11    | 28      | O   | MUTM   | 53      | I   | TST6   | 78      | I   | ADDN   |
| 4           | O   | A12    | 29      | O   | UNLK   | 54      | I/O | EXSY   | 79      | I   | ERRI   |
| 5           | O   | A13    | 30      | I   | RFCT   | 55      | I/O | EXSN   | 80      | O   | ERRF   |
| 6           | O   | A14    | 31      | O   | SYMN   | 56      | I/O | F128   | 81      | O   | MNTG   |
| 7           | O   | XWE    | 32      | I   | TST5   | 57      | O   | F256   | 82      | I/O | D7     |
| 8           | O   | XOE    | 33      | O   | PLCK   | 58      | O   | F512   | 83      | I/O | D6     |
| 9           | O   | XEAN   | 34      | I   | TST2   | 59      | I   | ADLF   | 84      | I/O | D5     |
| 10          | I   | TST1   | 35      | I   | RFDT   | 60      | I   | DALF   | 85      | I/O | D4     |
| 11          | O   | XT10   | 36      | I   | XCS    | 61      | O   | XT20   | 86      | I/O | D3     |
| 12          | I   | XT11   | 37      | I   | SWP    | 62      | I   | XT21   | 87      | I/O | D2     |
| 13          | -   | GND    | 38      | -   | GND    | 63      | -   | GND    | 88      | -   | GND    |
| 14          | I   | XRST   | 39      | O   | PIPC   | 64      | O   | XT30   | 89      | I/O | D1     |
| 15          | O   | CLKO   | 40      | O   | REPB   | 65      | I   | XT31   | 90      | I/O | D0     |
| 16          | O   | MINT   | 41      | O   | REDT   | 66      | I   | FSEN   | 91      | O   | A00    |
| 17          | I   | ATSY   | 42      | I   | TST4   | 67      | O   | LR03   | 92      | O   | A01    |
| 18          | O   | MCLK   | 43      | O   | PDO    | 68      | O   | LR02   | 93      | O   | A02    |
| 19          | O   | DREF   | 44      | I   | SELC   | 69      | O   | LR01   | 94      | O   | A03    |
| 20          | O   | SBPM   | 45      | I   | MUTA   | 70      | I/O | LRCK   | 95      | O   | A04    |
| 21          | I   | EXCK   | 46      | I   | PLCO   | 71      | O   | WCK    | 96      | O   | A05    |
| 22          | I   | SDSI   | 47      | O   | PLVR   | 72      | O   | XBCK   | 97      | O   | A06    |
| 23          | O   | SDSO   | 48      | O   | PLRF   | 73      | I/O | BCK    | 98      | O   | A07    |
| 24          | O   | SBSY   | 49      | I   | MSSL   | 74      | I   | ADDT   | 99      | O   | A08    |
| 25          | O   | RFPL   | 50      | I   | RX     | 75      | O   | DADT   | 100     | O   | A09    |

## INPUT

ADDN :AUDIO SIGNAL FOR AES/EBU DIGITAL IN. NORMALLY CONNECTED TO ADD1  
 ADDT :SERIAL DATA FROM ADC. SYNCHRONIZES WITH BCK  
 ADLF :LSB/MSB FIRST SELECTION FOR ADDT/ADDN/ADDI SIGNALS. LSB FIRST IS SELECTED WHEN 'H'  
 ATSY :ATF SYNC SIGNAL. SYNCHRONIZES WHEN 'H'  
 DALF :LSB/MSB FIRST SELECTION FOR DADT/DADO SIGNALS. LSB FIRST WHEN 'H'  
 DADO :AUDIO SIGNAL FOR AES/EBU DIGITAL OUT. NORMALLY CONNECTED TO DADT  
 ERRI :VALIDITY FLAG FOR AES/EBU DIGITAL OUT. NORMALLY CONNECTED TO ERRF  
 EXCK :CLOCK FOR DATA TRANSMISSION WITH  $\mu$ COM  
 FSEN :F128,BCK,LRCK INPUT/OUTPUT SELECTION. OUTPUT WHEN 'H'  
 MSSL :MASTER/SLAVE SELECTION. MASTER WHEN 'H'  
 MUTA :MUTES REC MONITOR SOUNDS AS WELL. 48.152MHz WHEN 'H'  
 MUTE :DOES NOT MUTE REC MONITOR SOUNDS. MUTES WHEN 'H'  
 PLCO :RX-ANALOG PLL EXTERNAL VCO CLOCK INPUT  
 RFCT :RF SIGNAL OUT CONTROL. CUTS WHEN 'H'  
 RFDT :PLAYBACK RF SIGNAL  
 RX :AES/EBU DIGITAL IN SIGNAL  
 SDSI :SERIAL DATA INPUT FROM  $\mu$ COM  
 SDSO :SERIAL DATA OUTPUT TO  $\mu$ COM  
 SELC :CRYSTAL 3 LIQUID C  
 SWP :PLAYBACK RF SIGNAL DISCRIMINATION. A CH TRACK WHEN 'L' AND B CH TRACK WHEN 'H'  
 TST1 :TEST PIN, FIXED AT 'L'  
 TST2 :TEST PIN, FIXED AT 'L'  
 TST4 :TEST PIN, FIXED AT 'L'  
 TST5 :TEST PIN, FIXED AT 'H'  
 TST6 :TEST PIN, FIXED AT 'H'  
 XCS :CHIP SELECT FOR DATA TRANSMISSION WITH  $\mu$ COM. TRANSMISSION PERMITTED WHEN 'L'  
 XRST :RESET INPUT. RESETS WHEN 'L'  
 XT11 :CRYSTAL OSCILLATION CIRCUIT 1 INPUT  
 XT21 :CRYSTAL OSCILLATION CIRCUIT 2 INPUT  
 XT31 :CRYSTAL OSCILLATION CIRCUIT 3 INPUT

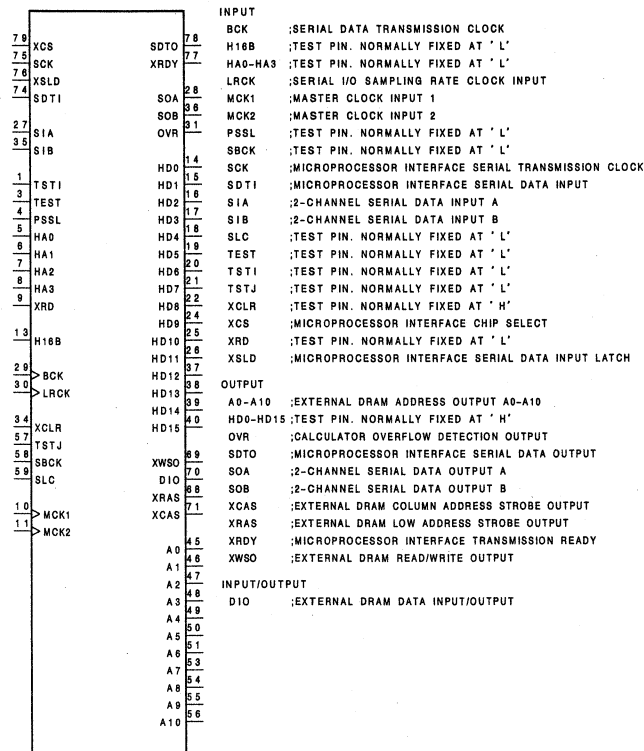
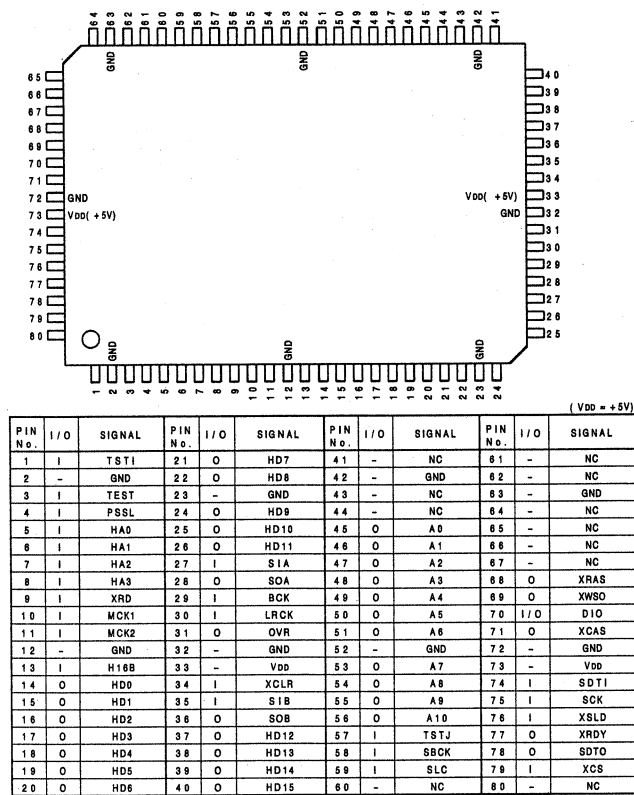
## OUTPUT

A00-A14 :EXTERNAL RAM ADDRESS OUTPUT  
 ADDI :AUDIO SIGNAL FOR AES/EBU DIGITAL IN  
 CLK :9.8304MHz/12.288MHz  
 CLKO :SYSTEM CLOCK OUTPUT(4.9152MHz/8.192MHz)  
 DADT :SERIAL DATA TO DAC  
 DREF :SIGNAL WITH SBSY PERIOD AND 50% DUTY  
 ERRF :DADT DATA COMPENSATION DISCRIMINATION SIGNAL. COMPENSATION DATA WHEN 'H'  
 F256 :256xfs. 512xfs WHEN DOUBLE SPEED  
 F512 :512xfs. DOES NOT CHANGE EVEN WHEN DOUBLE SPEED  
 LR01 :15BCK DELAY SIGNAL OF LRCK  
 LR02 :16BCK DELAY SIGNAL OF LRCK/LRCK CLOCK OF RX-PLL  
 LR03 :LR02 REVERSAL SIGNAL  
 MCLK :CHANNEL CLOCK OUTPUT  
 MINT :SIGNAL DETECTING INTERVAL BETWEEN PROGRAMS(CD)(AT DIN)/RX-PLL BCK CLOCK  
 MNTG :D0 to D7 CORRECTION MONITOR DATA DISCRIMINATION SIGNAL. VALID WHEN 'H'  
 MUTM :MUTE MONITOR. MUTES WHEN 'H'  
 PDO :PHASE COMPARTOR OUTPUT FOR RX-ANALOG PLL  
 PIPC :ATF PILOT SIGNAL DISCRIMINATION OF RECORDING SIGNALS. PILOT SIGNAL WHEN 'H'  
 PLCK :RF-PLL CLOCK/RX-PLL F128 CLOCK  
 PLRF :RX-ANALOG PLL PHASE COMPARISON SIGNAL(2fs RX SYNC DETECTION SIGNAL)  
 PLVR :RX-ANALOG PLL PHASE COMPARISON SIGNAL(2fs FROM THE PLL CLOCK)  
 REDT :RECORDING SIGNAL  
 REPB :REC-PB DISCRIMINATION SIGNAL. REC WHEN 'H'  
 RFPL :1/5880 FREQUENCY DIVISION OF PLL CLOCK  
 SBPM :SIGNAL PERMITTING PACK TRANSMISSION WITH  $\mu$ COM/RX-PLL F256 CLOCK  
 SBSY :FRAME SYNC SIGNAL OUTPUT FOR DATA TRANSMISSION WITH  $\mu$ COM  
 SYMN :C1 CHECK RESULTS CORRESPONDING TO RF. 'OK' WHEN 'H'  
 TX :AES/EBU DIGITAL OUT SIGNAL  
 UNLK :RX-PLL LOCK MONITOR SIGNAL. LOCKS WHEN 'L'  
 WCK :2xfs. 4xfs WHEN DOUBLE SPEED  
 XBCK :BCK REVERSAL SIGNAL  
 XEAN :EXTERNAL ADDRESSING ENABLE SIGNAL OUTPUT  
 XOE :EXTERNAL RAM OUTPUT ENABLE SIGNAL OUTPUT  
 XT10 :CRYSTAL OSCILLATION CIRCUIT 1 OUTPUT(9.408MHz/18.816MHz/37.632MHz)  
 XT20 :CRYSTAL OSCILLATION CIRCUIT 2 OUTPUT(22.5792MHz)  
 XT30 :CRYSTAL OSCILLATION CIRCUIT 3 OUTPUT(24.576MHz/49.152MHz)  
 XWE :EXTERNAL RAM WRITE ENABLE SIGNAL OUTPUT

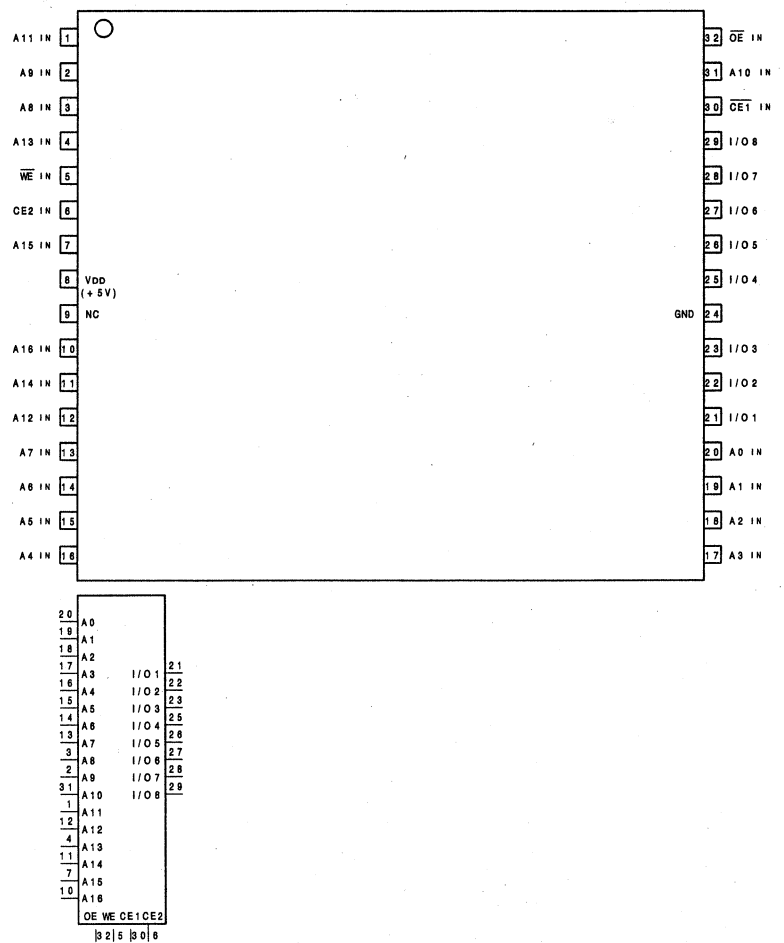
## INPUT/OUTPUT

BCK :84xfs. 128xfs WHEN DOUBLE SPEED  
 D0-D7 :EXTERNAL RAM DATA  
 EXSN :EXTERNAL SYNC SIGNAL. NORMALLY CONNECTED TO EXSY  
 EXSY :EXTERNAL SYNC SIGNAL. NORMALLY CONNECTED TO EXSN(x1SP:100/3Hz)  
 F128 :128xfs. 256xfs WHEN DOUBLE SPEED  
 LRCK :fs. 2xfs WHEN DOUBLE SPEED

## CXD2704Q (SONY) FLAT PACKAGE

C-MOS DIGITAL AUDIO SIGNAL PROCESSOR  
- TOP VIEW -

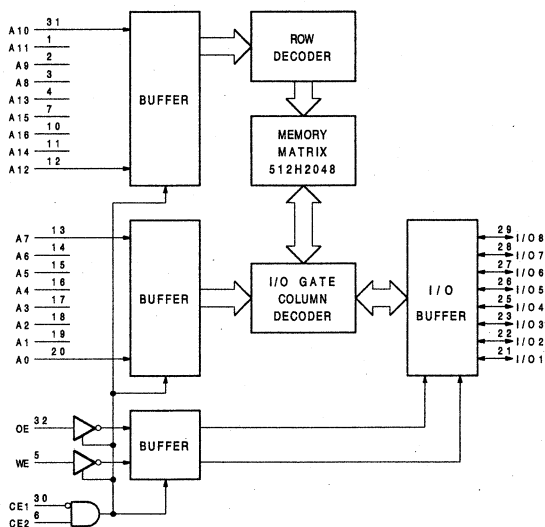
## CXK581100TM-10LL (SONY) FLAT PACKAGE

C-MOS 1M(131072 x 8)-BIT STATIC RAM  
- TOP VIEW -

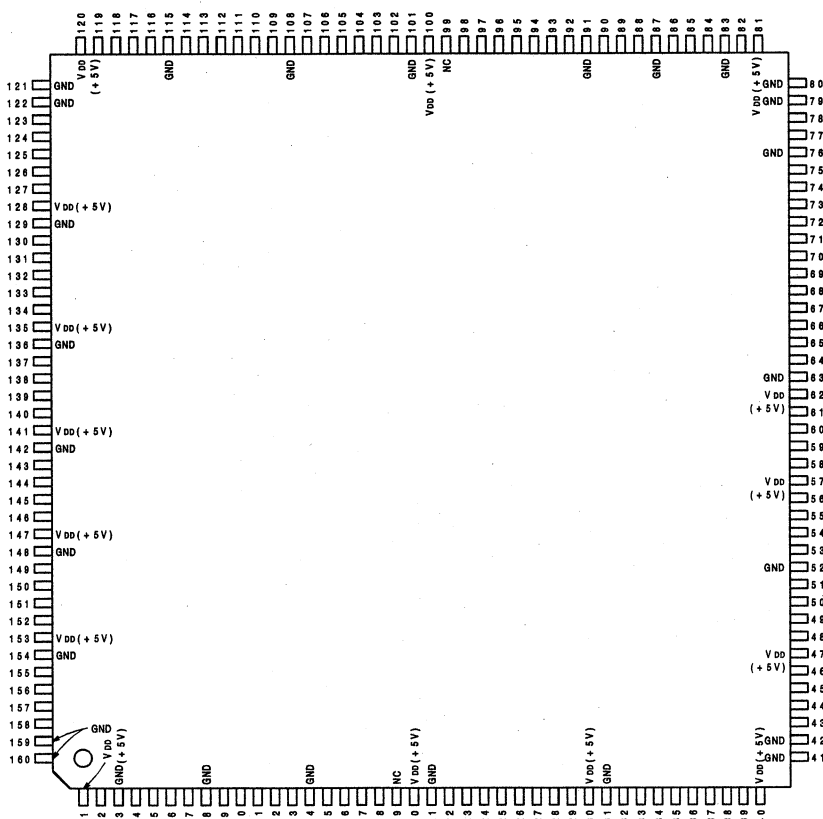
A0-A16 : ADDRESS INPUTS  
CE1,CE2 : CHIP ENABLE INPUT  
I/O1-I/O8 : DATA INPUTS/OUTPUTS  
OE : OUTPUT ENABLE INPUT  
WE : WRITE ENABLE INPUT

| CE1 | CE2 | OE | WE | MODE           | I/O TERMINAL   |
|-----|-----|----|----|----------------|----------------|
| 1   | x   | x  | x  | NOT SELECT     | HIGH IMPEDANCE |
| x   | 0   | x  | x  | NOT SELECT     | HIGH IMPEDANCE |
| 0   | 1   | 1  | 1  | OUTPUT DISABLE | HIGH IMPEDANCE |
| 0   | 1   | 0  | 1  | READ           | OUTPUT DATA    |
| 0   | 1   | x  | 0  | WRITE          | INPUT DATA     |

0 : LOW LEVEL  
1 : HIGH LEVEL  
x : DON'T CARE



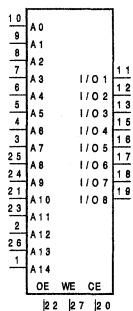
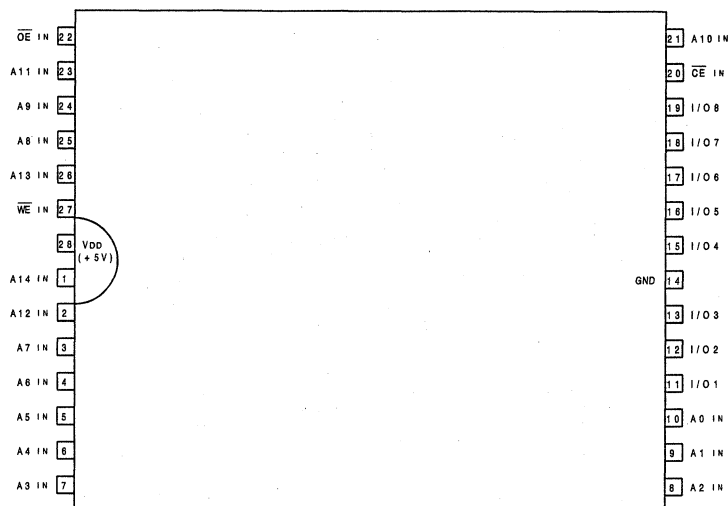
## CXD8864Q (SONY) FLAT PACKAGE

C-MOS SOUND MEMORY CONTROLLER FOR R-DAT  
- TOP VIEW -

| INPUT          |  |
|----------------|--|
| AB0-AB15       | :CPU ADDRESS BUS From SYSTEM                       |
| CPUCK          | :CPU CLOCK   |
| DATFRM         | :DAT FRAME INPUT SIGNAL                            |
| DSIEN          | :DSP ENABLE SIGNAL                                 |
| EMU SEL        | :EMULATOR SELECTION PIN                            |
| ENDRTN         | :END RETURN SIGNAL                                 |
| ERRF           | :TEST SIGNAL(NOT USE)                              |
| EXCK           | :TEST SIGNAL(NOT USE)                              |
| EXTSDI         | :EXTERNAL SERIAL DATA INPUT                        |
| F256           | :256-Fs  |
| I/O EN/        | :I/O(AREA)ENABLE SIGNAL                            |
| I/O RD/        | :I/O(AREA)READ SIGNAL                              |
| I/O WR/        | :I/O(AREA)WRITE SIGNAL                             |
| LCKI           | :LR CLOCK INPUT SIGNAL                             |
| MEMEN/         | :MEMORY(AREA)ENABLE SIGNAL                         |
| MRD/           | :MEMORY(AREA)READ SIGNAL                           |
| MWR/           | :MEMORY(AREA)WRITE SIGNAL                          |
| NA0,1,2        | :DSP ADDRESS                                       |
| PGMSDI         | :SERIAL DATA INPUT                                 |
| READY          | :READY SIGNAL                                      |
| RESET/         | :RESET SIGNAL                                      |
| SSSY           | :TEST SIGNAL(NOT USE)                              |
| SDI            | :SERIAL DATA INPUT                                 |
| WRACK          | :WRITE ACKNOWLEDGE SIGNAL                          |
| XRDY 0, 1, 2   | :TRANSMISSION READY(SCK INPUT PROHIBITED)          |
| OUTPUT         |  |
| CAS            | :DRAM COLUMN ADDRESS STROBE OUTPUT SIGNAL          |
| DSP SEL0, 1, 2 | :DSP CHIP SELECT PIN                               |
| END            | :END SIGNAL  |
| EXTSCK         | :EXTERNAL SERIAL TRANSMISSION CLOCK                |
| EXTSDO         | :EXTERNAL SERIAL DATA INPUT                        |
| EXTSDY         | :EXTERNAL TRANSMISSION READY(SCK INPUT PROHIBITED) |
| EXTSLD         | :EXTERNAL SERIAL DATA INPUT LATCH                  |
| FS             | :FS OUTPUT FOR DSP                                 |
| FS64           | :BIT SHIFT CLOCK OUTPUT FOR DSP                    |
| OE             | :DRAM OUTPUT ENABLE SIGNAL OUTPUT                  |
| PGMSCK         | :SERIAL TRANSMISSION CLOCK                         |
| PGMSDO         | :SERIAL DATA OUTPUT                                |
| PGMSLD         | :SERIAL DATA INPUT LATCH                           |
| RA0-RA9        | :ADDRESS BUS to DRAM                               |
| RAS            | :DRAM LOW ADDRESS STROBE OUTPUT SIGNAL 2           |
| RDRFM          | :SIGNAL OUTPUT FOR MEMORY READ INTERRUPTION        |
| RDSTS          | :LED OUTPUT FOR DRAM WRITE MONITOR                 |
| SDO1,2         | :SERIAL DATA OUTPUT 1,2                            |
| SDSO           | :TEST SIGNAL(NOT USE)                              |
| TRGA1          | :TRGA OUTPUT SIGNAL                                |
| TRGB1          | :TRGB OUTPUT SIGNAL                                |
| WE             | :DRAM WRITE ENABLE SIGNAL                          |
| WRFRM          | :SIGNAL OUTPUT FOR MEMORY WRITE INTERRUPTION       |
| WRREQ          | :WRITE REQUEST SIGNAL                              |
| WRSTS          | :LED OUTPUT FOR DRAM READ MONITOR                  |
| INPUT/OUTPUT   |  |
| DB0-DB15       | :CPU DATA BUS From SYSTEM                          |
| RDQ0-RDQ15     | :DATA BUS to DRAM                                  |

| (VDD = +5V) |     |        |         |     |        |         |     |          |         |
|-------------|-----|--------|---------|-----|--------|---------|-----|----------|---------|
| PIN No.     | I/O | SIGNAL | PIN No. | I/O | SIGNAL | PIN No. | I/O | SIGNAL   | PIN No. |
| 1           | -   | VDD    | 41      | -   | GND    | 81      | -   | VDD      | 121     |
| 2           | I   | CPUCK  | 42      | -   | GND    | 82      | I   | F256     | 122     |
| 3           | -   | GND    | 43      | I/O | DB15   | 83      | -   | GND      | 123     |
| 4           | I   | RESET  | 44      | I/O | DB14   | 84      | I   | SSSY     | 124     |
| 5           | O   | READY  | 45      | I/O | DB13   | 85      | O   | FS       | 125     |
| 6           | I   | I/O RD | 46      | I/O | DB12   | 86      | O   | FS64     | 126     |
| 7           | I   | I/O WR | 47      | -   | VDD    | 87      | -   | GND      | 127     |
| 8           | -   | GND    | 48      | I/O | DB11   | 88      | I   | SDI      | 128     |
| 9           | I   | MRD    | 49      | I/O | DB10   | 89      | O   | SDO1     | 129     |
| 10          | I   | MWR    | 50      | I/O | DB9    | 90      | O   | SDO2     | 130     |
| 11          | I   | I/O EN | 51      | I/O | DB8    | 91      | -   | GND      | 131     |
| 12          | I   | MEMEN  | 52      | -   | GND    | 92      | I   | EMU SEL  | 132     |
| 13          | I   | DSIEN  | 53      | I/O | DB7    | 93      | I   | EXTSDI   | 133     |
| 14          | -   | GND    | 54      | I/O | DB6    | 94      | O   | EXTSDY   | 134     |
| 15          | O   | WRREQ  | 55      | I/O | DB5    | 95      | O   | EXTSDO   | 135     |
| 16          | I   | WRACK  | 56      | I/O | DB4    | 96      | O   | EXTSLD   | 136     |
| 17          | O   | END    | 57      | -   | VDD    | 97      | O   | EXTSCK   | 137     |
| 18          | I   | ENDRTN | 58      | I/O | DB3    | 98      | I   | NA2      | 138     |
| 19          | -   | NC     | 59      | I/O | DB2    | 99      | -   | NC       | 139     |
| 20          | -   | VDD    | 60      | I/O | DB1    | 100     | -   | VDD      | 140     |
| 21          | -   | GND    | 61      | I/O | DB0    | 101     | -   | GND      | 141     |
| 22          | I   | AB15   | 62      | -   | VDD    | 102     | I   | NA1      | 142     |
| 23          | I   | AB14   | 63      | -   | GND    | 103     | I   | NA0      | 143     |
| 24          | I   | AB13   | 64      | O   | WRFRM  | 104     | O   | DSP SEL2 | 144     |
| 25          | I   | AB12   | 65      | I   | EXCK   | 105     | O   | DSP SEL1 | 145     |
| 26          | I   | AB11   | 66      | O   | SDSO   | 106     | O   | DSP SEL0 | 146     |
| 27          | I   | AB10   | 67      | I   | ERRF   | 107     | I   | PGMSDI   | 147     |
| 28          | I   | AB9    | 68      | O   | RDRFM  | 108     | -   | GND      | 148     |
| 29          | I   | AB8    | 69      | I   | TEST3  | 109     | O   | PGMSCK   | 149     |
| 30          | -   | VDD    | 70      | I   | TEST2  | 110     | O   | PGMSLD   | 150     |
| 31          | -   | GND    | 71      | I   | TEST1  | 111     | O   | PGMSDO   | 151     |
| 32          | I   | AB7    | 72      | O   | RDSTS  | 112     | I   | XRDY2    | 152     |
| 33          | I   | AB6    | 73      | O   | WRSTS  | 113     | I   | XRDY1    | 153     |
| 34          | I   | AB5    | 74      | O   | TRGB1  | 114     | I   | XRDY0    | 154     |
| 35          | I   | AB4    | 75      | O   | TRGA1  | 115     | -   | GND      | 155     |
| 36          | I   | AB3    | 76      | -   | GND    | 116     | O   | RAS      | 156     |
| 37          | I   | AB2    | 77      | I   | LCKI   | 117     | O   | CAS      | 157     |
| 38          | I   | AB1    | 78      | I   | DATFRM | 118     | O   | WE       | 158     |
| 39          | I   | AB0    | 79      | -   | GND    | 119     | O   | OE       | 159     |
| 40          | -   | VDD    | 80      | -   | GND    | 120     | -   | VDD      | 160     |

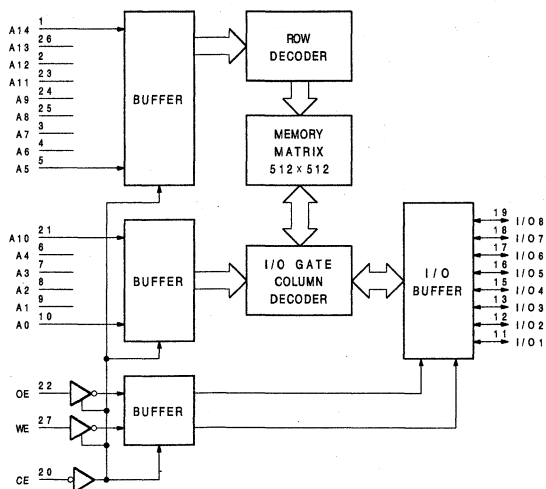
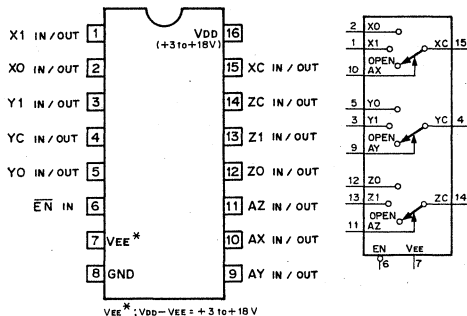
## CXK58257ATM-70LL (SONY) FLAT PACKAGE

C-MOS 256k (32768 x 8)-BIT STATIC RAM  
- TOP VIEW -

A0-A14 : ADDRESS INPUTS  
CE : CHIP ENABLE INPUT  
I/O 1-I/O 8 : DATA INPUTS/OUTPUTS  
OE : OUTPUT ENABLE INPUT  
WE : WRITE ENABLE INPUT

| CE | OE | WE | MODE           | I/O TERMINAL   |
|----|----|----|----------------|----------------|
| 1  | x  | x  | NOT SELECT     | HIGH IMPEDANCE |
| 0  | 1  | 1  | OUTPUT DISABLE | HIGH IMPEDANCE |
| 0  | 0  | 1  | READ           | OUTPUT DATA    |
| 0  | x  | 0  | WRITE          | INPUT DATA     |

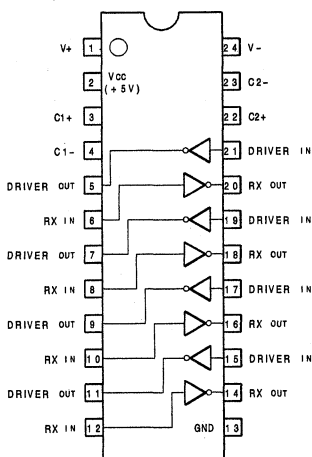
0 : LOW LEVEL  
1 : HIGH LEVEL  
x : DON'T CARE

HD14053BFP (HITACHI) FLAT PACKAGE  
MC14053BF (MOTOROLA) FLAT PACKAGEC-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULPLEXERS  
- TOP VIEW -

| CONT. INPUTS | ON CHANNEL |
|--------------|------------|
| EN           | A (X,Y,Z)  |
| 0            | 0          |
| 1            | 1          |
| 1            | X          |

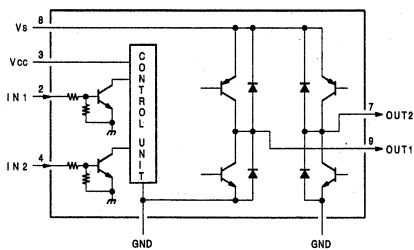
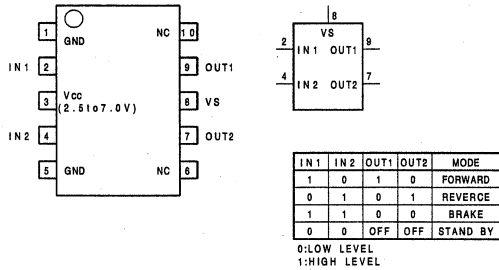
0 : LOW LEVEL  
1 : HIGH LEVEL  
X : DON'T CARE.

## LT1134CS (LINEAR TECH) FLAT PACKAGE

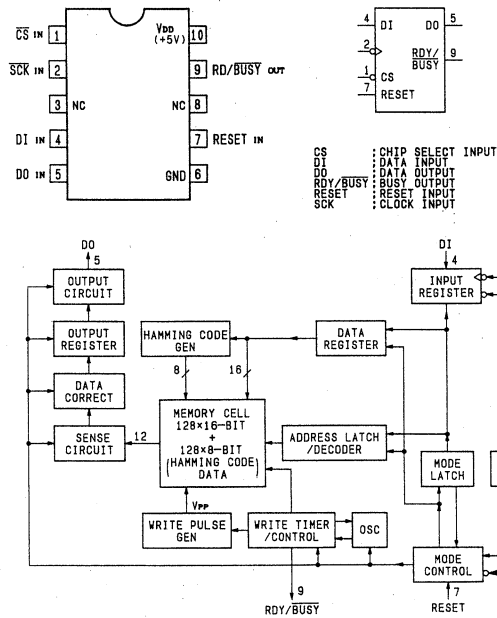
RS232C DRIVERS/RECEIVERS  
- TOP VIEW -

INPUT  
DRIVER IN : RS-232C DRIVER INPUTS  
RX IN : RECEIVER INPUTS  
OUTPUT  
DRIVER OUT : RS-232C DRIVER OUTPUTS  
RX OUT : RECEIVER OUTPUTS TTL/CMOS VOLTAGE LEVELS  
C1+, C1-, C2+, C2- : EXTERNAL CAPACITORS  
V+ : POSITIVE SUPPLY (RS-232C DRIVERS)  
V- : NEGATIVE SUPPLY (RS-232C DRIVERS)

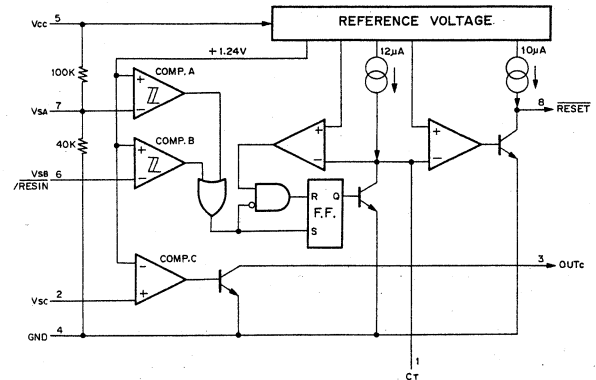
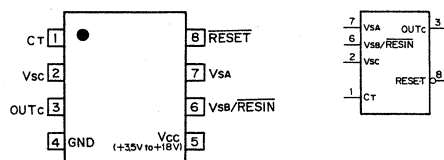
**LB1638M (SANYO) FLAT PACKAGE**  
**FORWARD/REVERSE MOTOR DRIVE**  
**- TOP VIEW -**



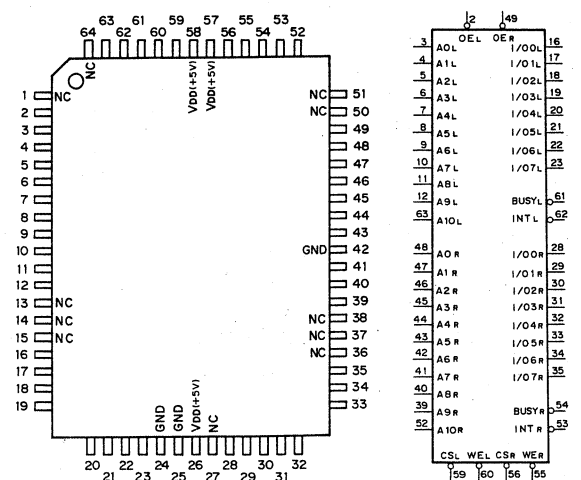
**M6M80021FP (MITSUBISHI) FLAT PACKAGE**  
**C-MOS 2k (128x16) BIT ERASABLE PROM**  
**- TOP VIEW -**



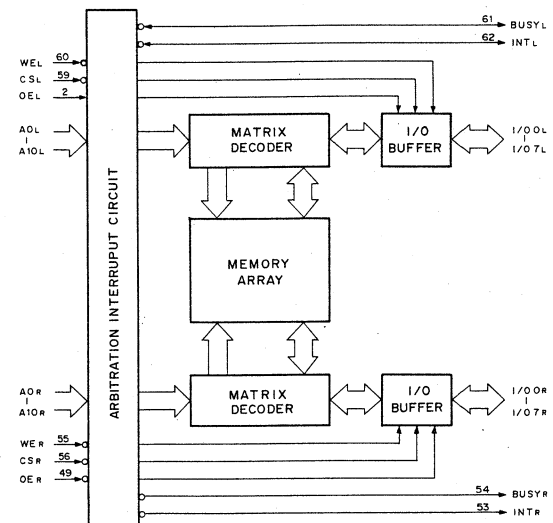
**MB3771PF (FUJITSU) FLAT PACKAGE**  
**2-WAY SUPPLY VOLTAGE SUPERVISOR**  
**- TOP VIEW -**



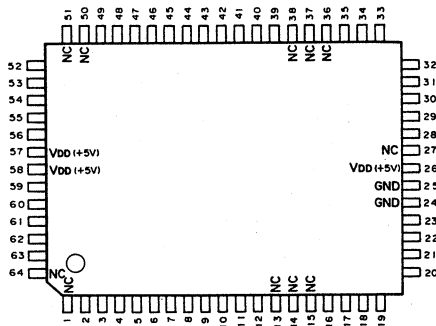
**MB8421-90LPFQ (FUJITSU) (ACCESS TIME = 90ns) FLAT PACKAGE**  
**C-MOS 16384 (2Kx8) BIT DUAL PORT STATIC RAM**  
**- TOP VIEW -**



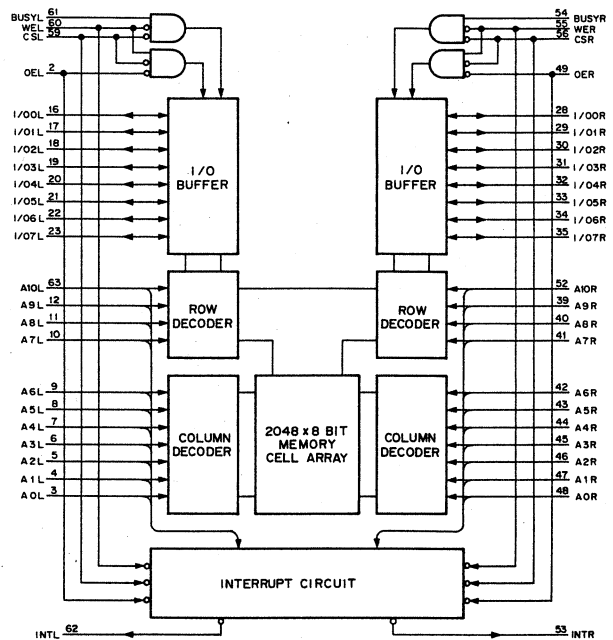
A0L - A10L, A0R - A10R: ADDRESS INPUTS  
 I/O0L - I/O7L, I/O0R - I/O7R: DATA INPUTS/OUTPUTS  
 CSL, CSR: CHIP SELECT INPUT  
 WEL, WER: WRITE ENABLE INPUT  
 OEL, OER: OUTPUT ENABLE INPUT  
 BUSYL, BUSYR: BUSY OUTPUT  
 INTL, INTR: INTERRUPT OUTPUT



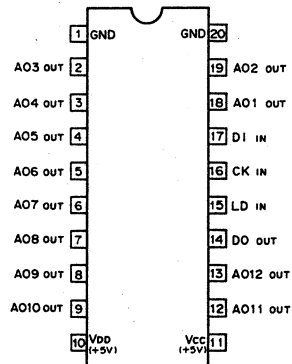
## MB8431-90LPFQ (FUJITSU)

C-MOS 16K (2048x8)-BIT DUAL PORT STATIC RAM  
- TOP VIEW -

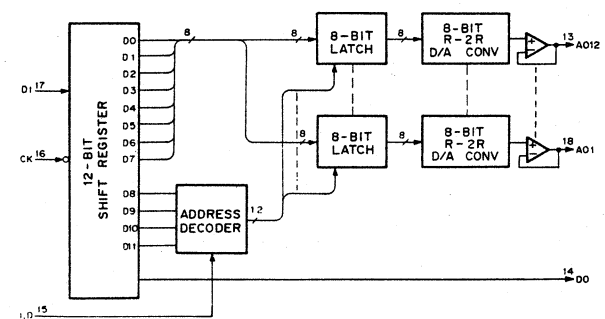
| PIN No. | I/O | SIGNAL | PIN No. | I/O | SIGNAL | PIN No. | I/O | SIGNAL | PIN No. | I/O | SIGNAL |
|---------|-----|--------|---------|-----|--------|---------|-----|--------|---------|-----|--------|
| 1       | -   | NC     | 17      | I/O | I/O1L  | 33      | I/O | I/O5R  | 49      | I   | OER    |
| 2       | I   | OEL    | 18      | I/O | I/O2L  | 34      | I/O | I/O6R  | 50      | -   | NC     |
| 3       | I   | A0L    | 19      | I/O | I/O3L  | 35      | I/O | I/O7R  | 51      | -   | NC     |
| 4       | I   | A1L    | 20      | I/O | I/O4L  | 36      | -   | NC     | 52      | I   | A10R   |
| 5       | I   | A2L    | 21      | I/O | I/O5L  | 37      | -   | NC     | 53      | O   | INTR   |
| 6       | I   | A3L    | 22      | I/O | I/O6L  | 38      | -   | NC     | 54      | I   | BUSYR  |
| 7       | I   | A4L    | 23      | I/O | I/O7L  | 39      | I   | A9R    | 55      | I   | WER    |
| 8       | I   | A5L    | 24      | -   | GND    | 40      | I   | A8R    | 56      | I   | CSR    |
| 9       | I   | A6L    | 25      | -   | GND    | 41      | I   | A7R    | 57      | -   | VDD    |
| 10      | I   | A7L    | 26      | -   | VDD    | 42      | I   | A6R    | 58      | -   | VDD    |
| 11      | I   | A8L    | 27      | -   | NC     | 43      | I   | A5R    | 59      | I   | CSL    |
| 12      | I   | A9L    | 28      | I/O | I/O0R  | 44      | I   | A4R    | 60      | I   | WEL    |
| 13      | -   | NC     | 29      | I/O | I/O1R  | 45      | I   | A3R    | 61      | I   | BUSYL  |
| 14      | -   | NC     | 30      | I/O | I/O2R  | 46      | I   | A2R    | 62      | O   | INTL   |
| 15      | -   | NC     | 31      | I/O | I/O3R  | 47      | I   | A1R    | 63      | I   | A10L   |
| 16      | I/O | I/O0L  | 32      | I/O | I/O4R  | 48      | I   | A0R    | 64      | -   | NC     |



## MB88346BPFV (FUJITSU) FLAT PACKAGE (SMALL)

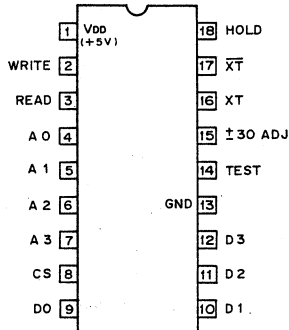
C-MOS 8-BIT D/A CONVERTER  
- TOP VIEW -

A01 - A012 : 8-BIT D/A OUTPUTS  
CK : CLOCK INPUT  
DI : SERIAL DATA INPUT  
DO : DATA OUTPUT  
LD : DATA LOAD CONTROL INPUT (H: LOAD)





## MSM5832RS

MICROPROCESSOR REAL TIME CLOCK  
- TOP VIEW -

|       | ADDRESS |    |    |    | DATA I/O |    |    |    | COUNT |
|-------|---------|----|----|----|----------|----|----|----|-------|
|       | A0      | A1 | A2 | A3 | D0       | D1 | D2 | D3 |       |
| SEC.  | 0       | 0  | 0  | 0  | *        | *  | *  | *  | 0~9   |
| MIN.  | 0       | 1  | 0  | 0  | *        | *  | *  | *  | 0~9   |
| HOUR  | 0       | 0  | 1  | 0  | *        | *  | *  | *  | 0~9   |
| WEEK  | 0       | 1  | 1  | 0  | *        | *  | *  | *  | 0~6   |
| DAY   | 0       | 0  | 0  | 1  | *        | *  | *  | *  | 0~3   |
| MONTH | 0       | 1  | 0  | 1  | *        | *  | *  | *  | 0~1   |
| YEAR  | 0       | 0  | 1  | 1  | *        | *  | *  | *  | 0~9   |

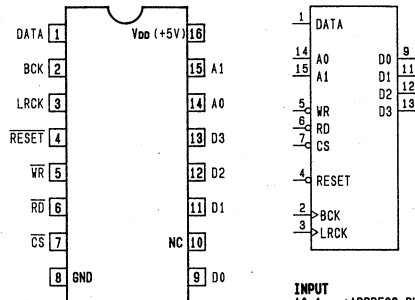
Regarding Do to D3

\*: 0 or 1

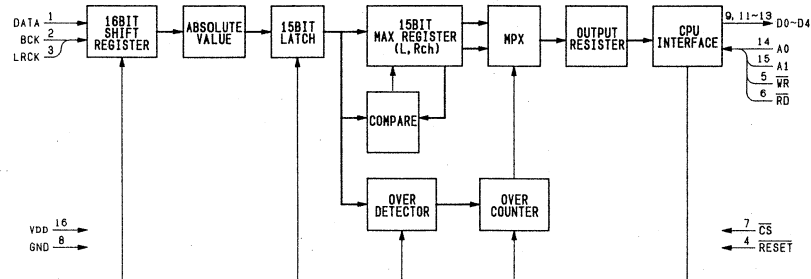
⊙: Bit for AM/PM, 12H/24H, leap year (0 or 1)

BLANK: No Bit

## MSM6338MS-K (OKI)

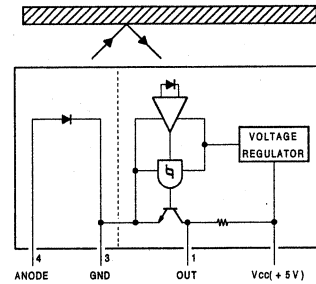
C-MOS DIGITAL AUDIO PEAK LEVEL DETECTOR  
- TOP VIEW -

INPUT  
A0, 1 : ADDRESS BUS  
BCK : BIT CLOCK  
DATA : AUDIO SERIAL DATA  
LRCK : LR CLOCK  
CS : CHIP SELECT  
RESET : RESET  
RD : DATA READ  
WR : DATA WRITE  
INPUT/OUTPUT  
D0~4 : DATA BUS

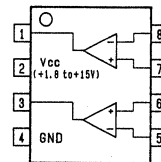


## NJL5803K-F10

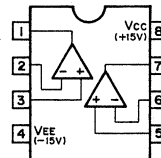
- TOP VIEW -



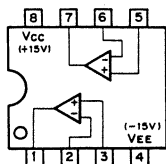
## NJM2073M (JRC)

DUAL OPERATIONAL AMPLIFIER  
- TOP VIEW -

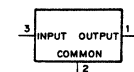
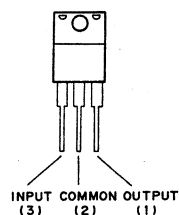
## NJM4556M-A (JRC) FLAT PACKAGE

OPERATIONAL AMPLIFIER  
(WIDE BAND, DECOMPENSATED)  
- TOP VIEW -

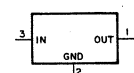
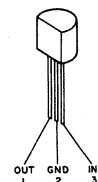
NJM4560M (JRC) FLAT PACKAGE  
DUAL OPERATIONAL AMPLIFIER  
- TOP VIEW -



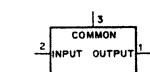
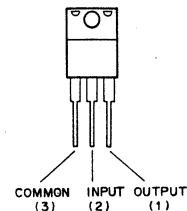
NJM7805FA (JRC) + 5V  
NJM7809FA (JRC) + 9V  
XRA17809T (EXAR) + 9V  
POSITIVE VOLTAGE REGULATOR (500mA)  
- FRONT VIEW -



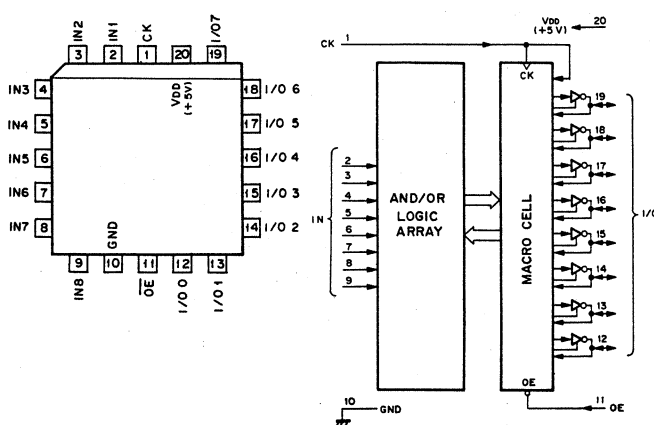
NJM78L05A (JRC) + 5V (100mA)  
POSITIVE VOLTAGE REGULATOR



NJM7905FA (JRC) - 5V  
NJM7909FA (JRC) - 9V  
NEGATIVE VOLTAGE REGULATOR (500mA)  
- FRONT VIEW -

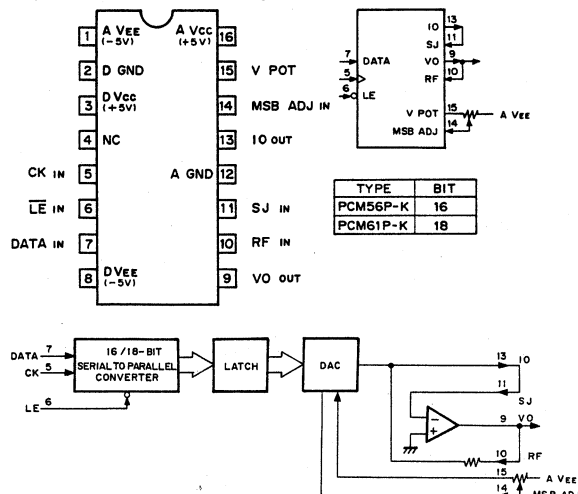


PALCE16V8Q-25JC (AMD)  
C-MOS ELECTRICALLY ERASABLE PROGRAMMABLE LOGIC DEVICE  
- TOP VIEW -



\* ABOVE DIAGRAM SHOWS CONDITIONS BEFORE PROGRAMMING.

PCM56P (BURR-BROWN)  
SERIAL INPUT D/A CONVERTER FOR DIGITAL AUDIO  
- TOP VIEW -



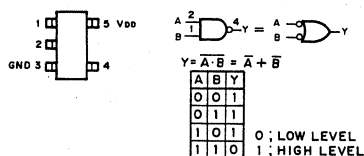
DATA ; SERIAL DATA INPUT MSB FIRST  
BINARY 2's COMPLEMENT  
CK ; CLOCK INPUT,  $\overline{\text{S}}$   
LE ; LATCH ENABLE,  $\overline{\text{L}}$   
IO ; CURRENT OUTPUT  
SJ ; SUMMING JUNCTION  
VO ; VOLTAGE OUTPUT  
RF ; FEEDBACK RESISTOR  
VPOT ; MSB TRIM POTENTIOMETER  
MSB ADJ ; MSB ADJUSTMENT

| DIGITAL INPUT BTC (HEX) |          | ANALOG OUTPUTS |           |                   |
|-------------------------|----------|----------------|-----------|-------------------|
| PCM56P-K                | PCM61-K  | DAC OUTPUT     | VO (V)    | IO (mA)           |
| 7FFF                    | 7FFFFFFF | +FULL SCALE    | +2.999908 | -0.999970         |
| 8000                    | 80003F   | -FULL SCALE    | -3.000000 | +1.000000         |
| 0000                    | 00003F   | BIPOLAR ZERO   | 0.000000  | 0.000000          |
| FFFF                    | FFFFFF   | ZERO-1LSB      | -0.000092 | +0.030500 $\mu$ A |

BTC : BINARY TWO'S COMPLEMENT

SC7S00F (MOTOROLA) CHIP PACKAGE  
TC7S00F (TOSHIBA) CHIP PACKAGE

### C-MOS 2-INPUT NAND GATE

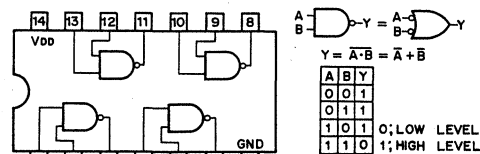


| TYPE   | V <sub>DD</sub> |
|--------|-----------------|
| 7S00F  | +2 to +6V       |
| 4S11F  | +3 to +18V      |
| 4SU11F |                 |

SN74HC00ANS (TI) FLAT PACKAGE

### C-MOS QUAD 2-INPUT NAND GATES

— TOP VIEW —



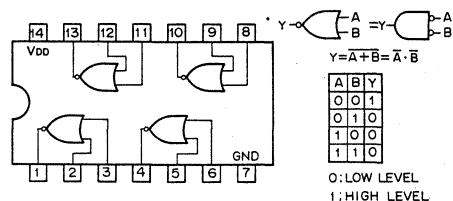
NOTE:

| TYPE          | V <sub>DD</sub> |
|---------------|-----------------|
| TC74AC00 TYPE | +2 to +5.5V     |
| TC74VHC00     |                 |
| MC74HCT00N    | +5V             |
| 74ACT00 TYPE  | +4.5 to +5.5V   |
| OTHER TYPES   | +2 to +6V       |

SN74HC02ANS (TI) FLAT PACKAGE

### C-MOS QUAD 2-INPUT NOR GATES

— TOP VIEW —



NOTE:

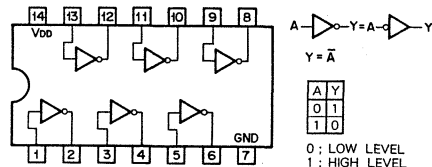
| TYPE        | V <sub>DD</sub> |
|-------------|-----------------|
| TC74AC02F   | +2 to +5.5V     |
| 74ACT02SJ   | +4.5 to +5.5V   |
| TC74ACT02F  |                 |
| OTHER TYPES | +2 to +6V       |

SN74HC04ANS (TI) FLAT PACKAGE

SN74HCU04ANS (TI) FLAT PACKAGE

### C-MOS HEX INVERTERS

— TOP VIEW —



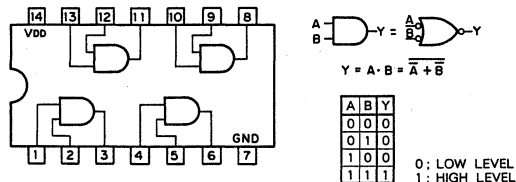
NOTE:

| TYPE           | V <sub>DD</sub> |
|----------------|-----------------|
| 74HCT04 TYPE   | +5V             |
| TC74AC04 TYPE  | +2 to +5.5V     |
| TC74VHC04 TYPE |                 |
| 74ACT04 TYPE   | +4.5 to +5.5V   |
| OTHER TYPES    | +2 to +6V       |

SN74HC08ANS (TI) FLAT PACKAGE

### C-MOS QUAD 2-INPUT AND GATES

— TOP VIEW —



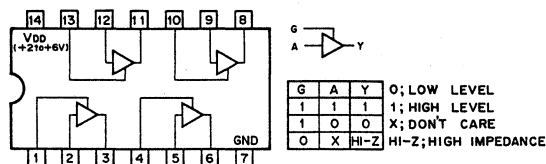
NOTE:

| TYPE        | V <sub>DD</sub> |
|-------------|-----------------|
| TC74AC08F   | +2 to +5.5V     |
| MC74ACT08M  |                 |
| TC40H       | +2 to +8V       |
| OTHER TYPES | +2 to +6V       |

SN74HC126ANS (TI) FLAT PACKAGE

### C-MOS BUS BUFFER GATE WITH 3-STATE OUTPUT

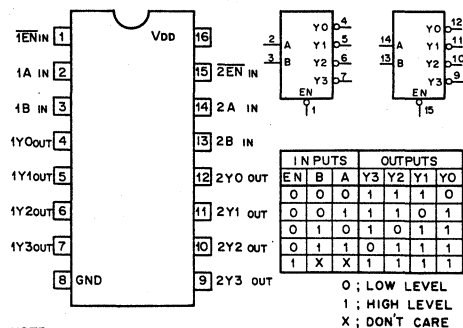
— TOP VIEW —



SN74HC139ANS (TI) FLAT PACKAGE

### C-MOS DUAL 2-TO-4 DECODER/DEMULTIPLEXER

— TOP VIEW —



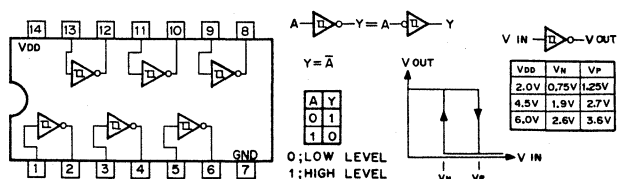
NOTE:

| TYPE      | V <sub>DD</sub> |
|-----------|-----------------|
| 74AC/74HC | +2 to +6V       |
| 74ACT     | +5V             |
| TC74AC139 | +2 to +5.5V     |

SN74HC14ANS (TI) FLAT PACKAGE

### C-MOS HEX SCHMITT TRIGGER INVERTERS

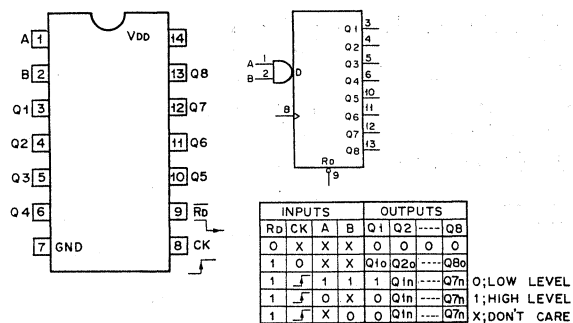
— TOP VIEW —



NOTE:

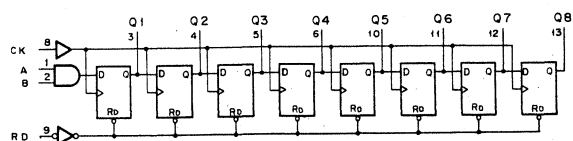
| TYPE          | V <sub>DD</sub> |
|---------------|-----------------|
| TC74AC14 TYPE | +2 to +5.5V     |
| OTHER TYPES   | +2 to +6V       |

SN74HC164ANS (TI) FLAT PACKAGE  
C-MOS 8-BIT SERIAL-IN/PARALLEL-OUT SHIFT REGISTER  
- TOP VIEW -

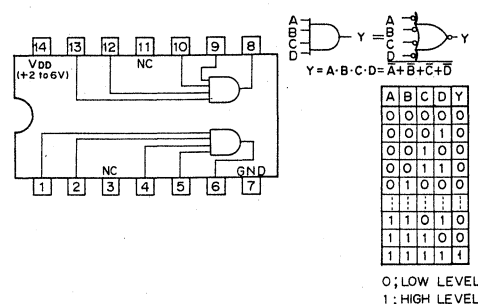


NOTE:

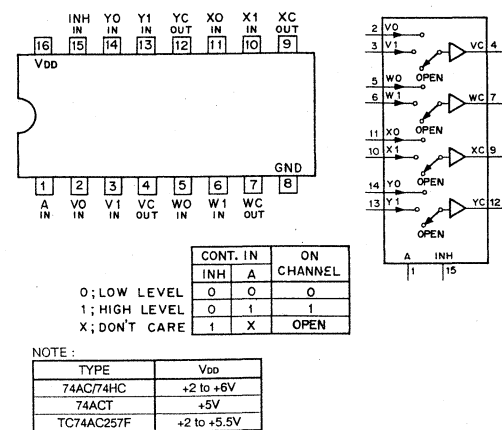
| TYPE           | VDD         |
|----------------|-------------|
| TC74AC164 TYPE | +2 to +5.5V |
| OTHER TYPES    | +2 to +6V   |



SN74HC21ANS (TI) FLAT PACKAGE  
C-MOS DUAL 4-INPUT POSITIVE AND GATE  
- TOP VIEW -



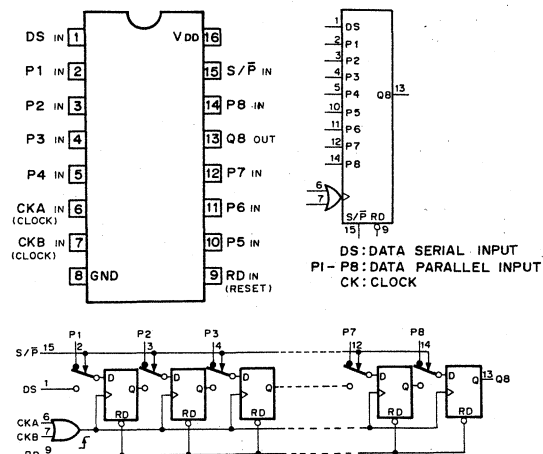
SN74HC257ANS (TI) FLAT PACKAGE  
C-MOS 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER  
- TOP VIEW -



NOTE:

| TYPE       | VDD         |
|------------|-------------|
| 74AC/74HC  | +2 to +6V   |
| 74ACT      | +5V         |
| TC74AC257F | +2 to +5.5V |

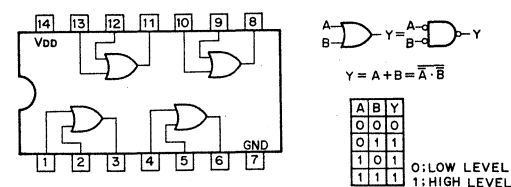
SN74HC166ANS (TI) FLAT PACKAGE  
C-MOS 8-BIT SHIFT REGISTER  
- TOP VIEW -



NOTE:

| TYPE   | VDD       |
|--------|-----------|
| TC40H  | +2 to +8V |
| OTHERS | +2 to +6V |

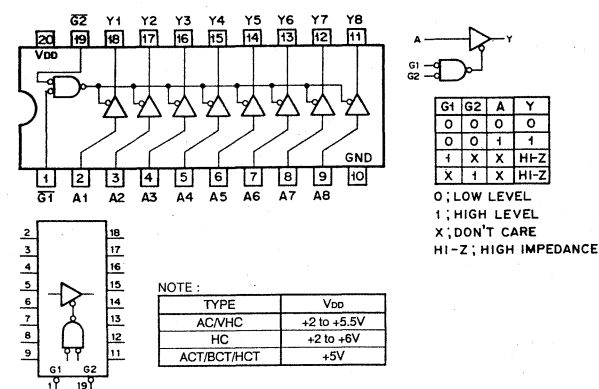
SN74HC32ANS (TI) FLAT PACKAGE  
C-MOS QUAD 2-INPUT OR GATES  
- TOP VIEW -



NOTE:

| TYPE          | VDD         |
|---------------|-------------|
| TC74AC32 TYPE | +2 to +5.5V |
| OTHER TYPES   | +2 to +6V   |

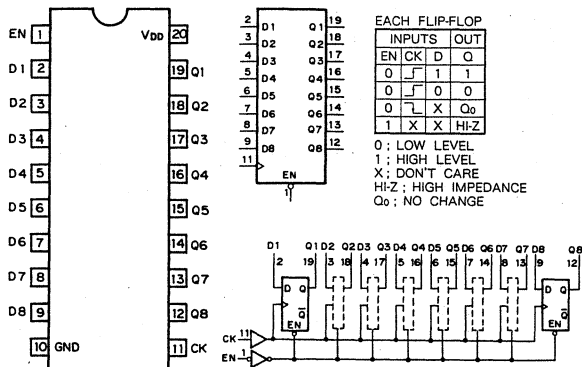
SN74HC541ANS (TI) FLAT PACKAGE  
C-MOS BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS  
- TOP VIEW -



NOTE:

| TYPE        | VDD         |
|-------------|-------------|
| ACM/HCT     | +2 to +5.5V |
| HCT         | +2 to +6V   |
| ACT/BCT/HCT | +5V         |

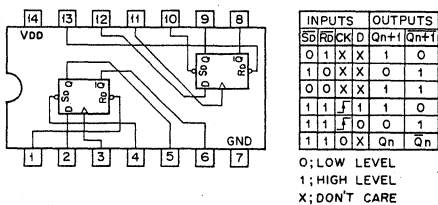
## SN74HC574ANS (TI) FLAT PACKAGE

C-MOS 3-STATE D-TYPE EDGE-TRIGGERED FLIP-FLOP  
- TOP VIEW -

NOTE:

| TYPE                     | V <sub>DD</sub> |
|--------------------------|-----------------|
| 74AC/74HC                | +2 to +6V       |
| 74ACT/74FCT/74HCT        | +5V             |
| TC74AC574F<br>TC74VHC574 | +2 to +5.5V     |

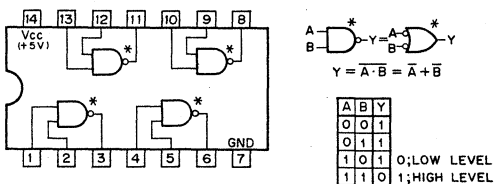
## SN74HC74ANS (TI) FLAT PACKAGE

C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET  
- TOP VIEW -

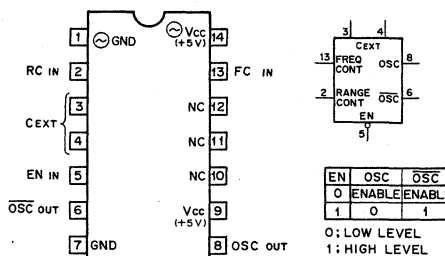
NOTE:

| TYPE          | V <sub>DD</sub> |
|---------------|-----------------|
| 74HC74AF      | +5V             |
| TC74AC74 TYPE | +2 to +5.5V     |
| 74ACT74 TYPE  | +4.5 to +5.5V   |
| OTHER TYPES   | +2 to +6V       |

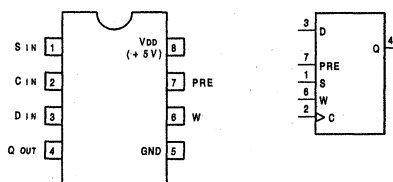
## SN74LS03NS (TI) FLAT PACKAGE

TTL 2-INPUT POSITIVE-NAND GATE WITH OPEN-COLLECTOR  
- TOP VIEW -

## SN74LS624NS (TI) FLAT PACKAGE

TTL VOLTAGE CONTROLLED OSCILLATOR  
- TOP VIEW -

## ST93CS56M1 (SGS-THOMSON MICRO ELECTRONICS) FLAT PACKAGE

C-MOS SERIAL ACCESS 2k (128 x 16)-BIT EEPROM  
- TOP VIEW -

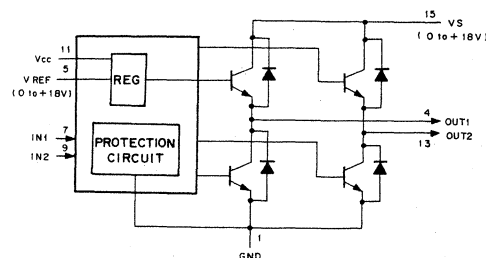
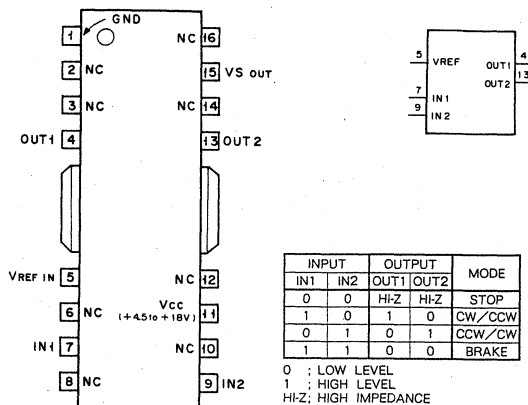
INPUT

C : SERIAL CLOCK  
D : SERIAL DATA  
PRE : PROTECT ENABLE  
S : CHIP SELECT  
W : WRITE ENABLE

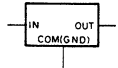
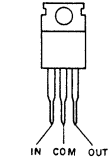
OUTPUT

Q : SERIAL DATA

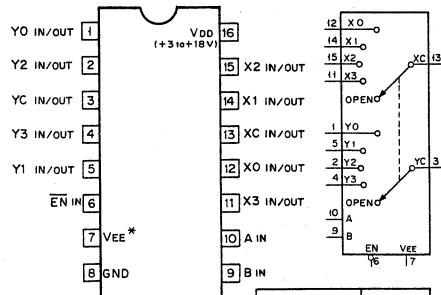
## TA7291F (TOSHIBA) FLAT PACKAGE

DC MOTOR FULLBRIDGE DRIVER  
- TOP VIEW -

TA7809S (TOSHIBA) +9V  
POSITIVE VOLTAGE REGULATOR (0.5A)  
- SIDE VIEW -



TC4052BFHB (TOSHIBA) FLAT PACKAGE  
C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS  
- TOP VIEW -

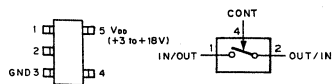


V<sub>EE</sub>\*; V<sub>DD</sub>-V<sub>EE</sub> = +3 to +18V

0; LOW LEVEL  
1; HIGH LEVEL  
X; DON'T CARE.

| CONTROL INPUTS |   |   |   | "ON" CHANNEL |
|----------------|---|---|---|--------------|
| EN             | B | A |   |              |
| 0              | 0 | 0 | 0 | 0            |
| 0              | 0 | 1 | 1 | 1            |
| 0              | 1 | 0 | 2 | 2            |
| 0              | 1 | 1 | 3 | 3            |
| 1              | X | X | X | OPEN         |

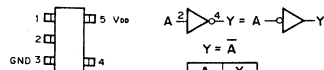
TC4S66F (TOSHIBA) CHIP PACKAGE  
C-MOS BILATERAL ANALOG SWITCH



| CONT | SWITCH |
|------|--------|
| 0    | OFF    |
| 1    | ON     |

0; LOW LEVEL  
1; HIGH LEVEL

TC7SU04F (TOSHIBA) CHIP PACKAGE  
C-MOS INVERTER

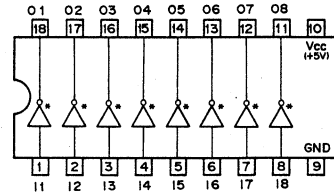


| A | Y |
|---|---|
| 0 | 1 |
| 1 | 0 |

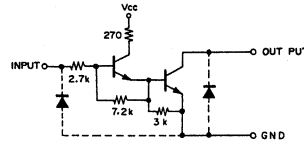
0; LOW LEVEL  
1; HIGH LEVEL

| TYPE            | V <sub>DD</sub> |
|-----------------|-----------------|
| 7S04F<br>7SU04F | +2 to +5V       |
| 4S69F<br>4SU69F | +3 to +18V      |

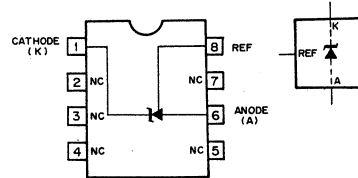
TD62381F (TOSHIBA) FLAT PACKAGE  
OCTAL LOW SATURATION DRIVER  
- TOP VIEW -



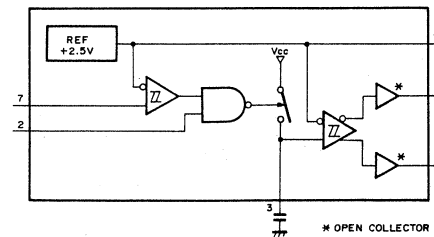
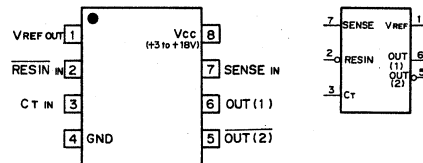
\*; OPEN COLLECTOR



TL431CPS (TI) FLAT PACKAGE  
ADJUSTABLE PRECISION SHUNT REGULATOR  
- TOP VIEW -



TL7705CPS-B (TI) FLAT PACKAGE  
POWER VOLTAGE SUPERVISOR  
- TOP VIEW -

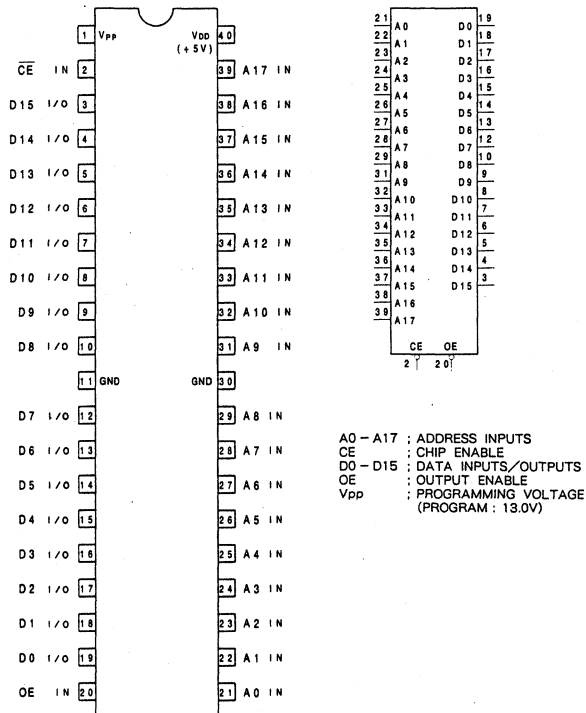


\* OPEN COLLECTOR

## TMS27C240-12JL (TI)

C-MOS 4M (262k X 16)-BIT UV EPROM

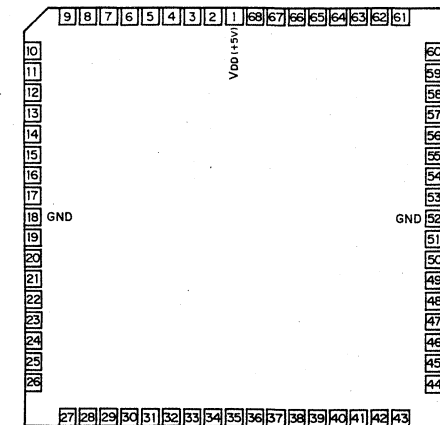
- TOP VIEW -



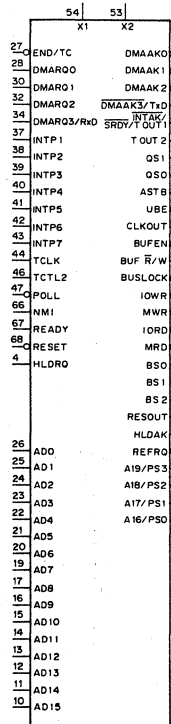
UPD70216L (NEC)

C-MOS 16 BIT MICROPROCESSOR

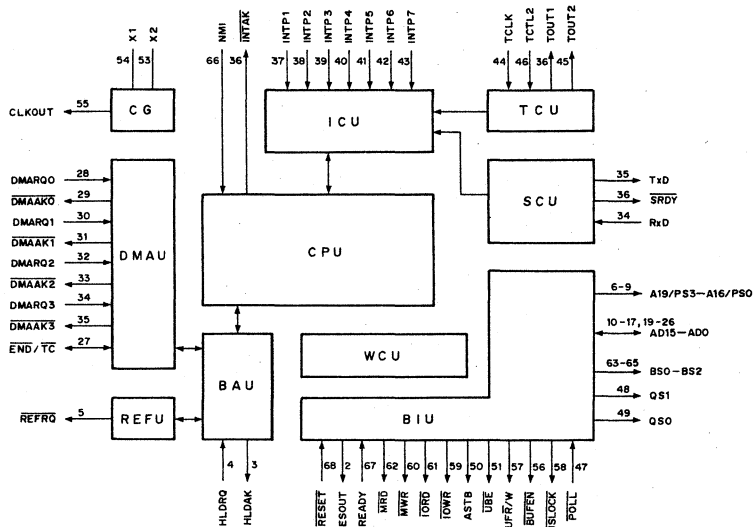
- TOP VIEW -



| PIN NO. | FUNCTION | PIN NO. | FUNCTION  | PIN NO. | FUNCTION         | PIN NO. | FUNCTION |
|---------|----------|---------|-----------|---------|------------------|---------|----------|
| 1       | VDD(+5V) | 18      | GND       | 35      | DMAAK3/TxD       | 52      | GND      |
| 2       | RES OUT  | 19      | AD7       | 36      | INTAK/SRDY/TOUT1 | 53      | X 2      |
| 3       | HLDAK    | 20      | AD6       | 37      | INTP 1           | 54      | X 1      |
| 4       | HLDRQ    | 21      | AD5       | 38      | INTP 2           | 55      | CLK OUT  |
| 5       | REFRQ    | 22      | AD4       | 39      | INTP 3           | 56      | BUFEN    |
| 6       | A19/PS3  | 23      | AD3       | 40      | INTP 4           | 57      | BUFR/W   |
| 7       | A18/PS2  | 24      | AD2       | 41      | INTP 5           | 58      | BUSLOCK  |
| 8       | A17/PS1  | 25      | AD1       | 42      | INTP 6           | 59      | IOWR     |
| 9       | A16/PS0  | 26      | AD0       | 43      | INTP 7           | 60      | MWR      |
| 10      | AD15     | 27      | END/TC    | 44      | TCLK             | 61      | IORD     |
| 11      | AD14     | 28      | DMAK0     | 45      | TOUT2            | 62      | MRD      |
| 12      | AD13     | 29      | DMAK0     | 46      | TCTL2            | 63      | BS0      |
| 13      | AD12     | 30      | DMAK1     | 47      | POLL             | 64      | BS1      |
| 14      | AD11     | 31      | DMAK1     | 48      | QS1              | 65      | BS2      |
| 15      | AD10     | 32      | DMAK2     | 49      | QS0              | 66      | NM1      |
| 16      | AD9      | 33      | DMAK2     | 50      | ASTB             | 67      | READY    |
| 17      | AD8      | 34      | DMAK3/RxD | 51      | UBE              | 68      | RESET    |

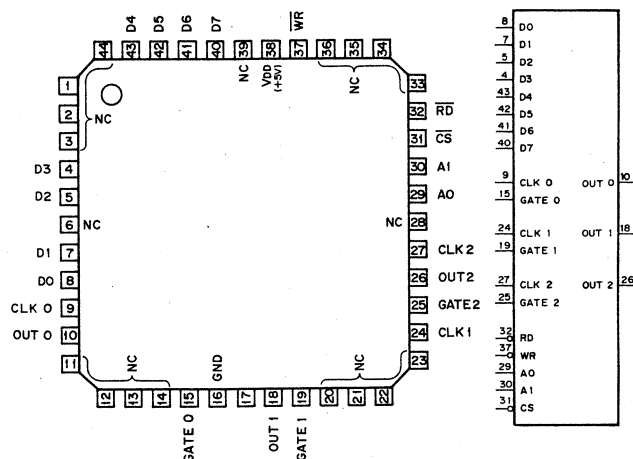


|                  |  |
|------------------|--|
| A16/PS0-A19/PS3  | (O) ; ADDRESS/PROCESSOR STATUS                       |
| AD0-AD15         | (I/O) ; ADDRESS BUS/DATA BUS                         |
| ASTB             | (O) ; ADDRESS STROBE                                 |
| BS0-BS2          | (O) ; BUS STATUS                                     |
| BUFEN            | (O) ; BUFFER ENABLE                                  |
| BUFR/W           | (O) ; BUFFER READ/WRITE                              |
| BUSLOCK          | (O) ; BUS LOCK                                       |
| CLKOUT           | (O) ; CLOCK OUTPUT                                   |
| DMAAK0-2         | (O) ; DMA ACKNOWLEDGE 0-2                            |
| DMAAK3/TxD       | (O) ; DMA ACKNOWLEDGE3/TRANSMIT DATA                 |
| DMAK0-2          | (I) ; DMA REQUEST 0-2                                |
| DMAK3/RxD        | (I) ; DMA REQUEST/RECEIVE DATA                       |
| END/TC           | (I/O) ; END/TERMINAL COUNT                           |
| HLDAK            | (O) ; BUS HOLD ACKNOWLEDGE                           |
| HLDRQ            | (I) ; BUS HOLD REQUEST                               |
| INTAK/SRDY/TOUT1 | (O) ; INTERRUPT ACKNOWLEDGE/SERIAL READY/TIMER OUT 1 |
| INTP0-INTP7      | (I) ; INTERRUPT REQUEST FROM PERIPHERAL 0-7          |
| IORD             | (O) ; I/O READ STROBE                                |
| IOWR             | (O) ; I/O WRITE STROBE                               |
| MRD              | (O) ; MEMORY READ STROBE                             |
| MWR              | (O) ; MEMORY WRITE STROBE                            |
| NM1              | (I) ; NON MASKABLE INTERRUPT                         |
| POLL             | (I) ; POLL   |
| QS0, QS1         | (O) ; QUEUE STATUS                                   |
| READY            | (I) ; READY  |
| REFRQ            | (O) ; REFRESH REQUEST                                |
| RESET            | (I) ; RESET  |
| RES OUT          | (O) ; SYSTEM RESET                                   |
| TCLK             | (I) ; TIMER CLOCK                                    |
| TCTL2            | (I) ; TIMER CONTROL 2                                |
| TOUT2            | (O) ; TIMER OUT 2                                    |
| UBE              | (O) ; UPPER BYTE ENABLE                              |
| X1, 2            | (I) ; CRYSTAL 1,2                                    |





UPD71054GB-10-3B4 (NEC) FLAT PACKAGE  
CMOS PROGRAMMABLE TIMER COUNTER  
- TOP VIEW -



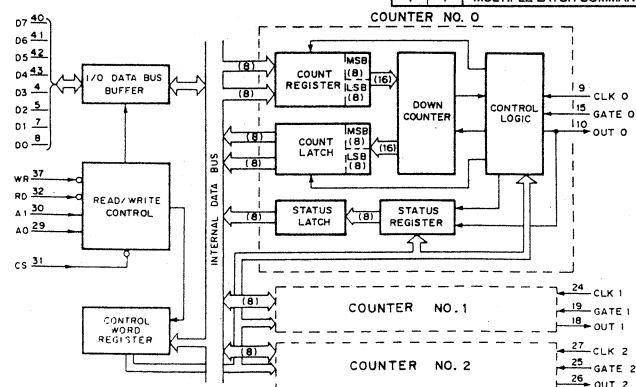
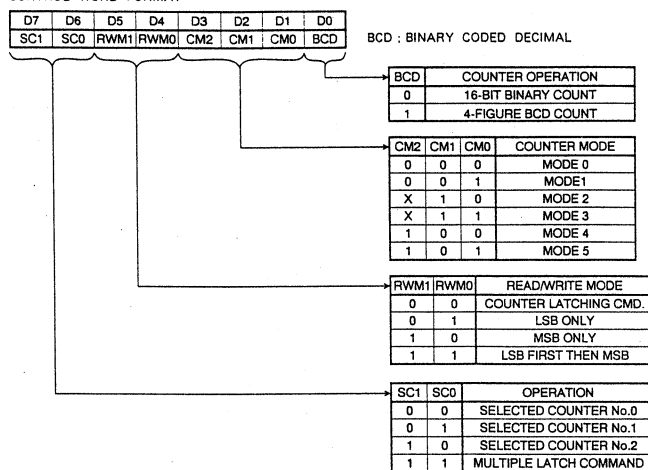
FUNCTION TABLE

| CS | RD | WR | A1 | AO | FUNCTION            |
|----|----|----|----|----|---------------------|
| 0  | 1  | 0  | 0  | 0  | COUNTER NO.1 WRITE  |
| 0  | 1  | 0  | 0  | 1  | COUNTER NO.2 WRITE  |
| 0  | 1  | 0  | 1  | 0  | COUNTER NO.3 WRITE  |
| 0  | 1  | 0  | 1  | 1  | CONTROL WORD WRITE  |
| 0  | 0  | 1  | 0  | 0  | COUNTER NO.1 READ   |
| 0  | 0  | 1  | 0  | 1  | COUNTER NO.2 READ   |
| 0  | 0  | 1  | 1  | 0  | COUNTER NO.3 READ   |
| 0  | 0  | 1  | 1  | 1  | NO-OPERATION (HI-Z) |
| 1  | X  | X  | X  | X  | DISABLE (HI-Z)      |
| 0  | 1  | 1  | X  | X  | NO-OPERATION (HI-Z) |

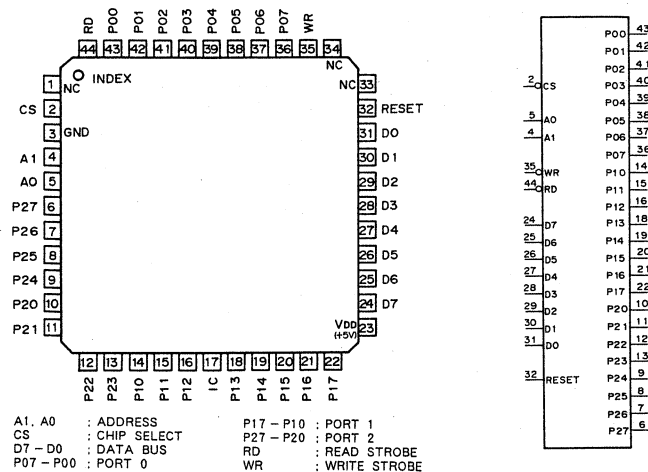
A1,A0 : SELECTED READ/WRITE OPERATION  
CLK n : COUNTER CLOCK INPUT n  
CS : CHIP SELECT  
D7-D0 : 8-BIT DATA I/O  
GATE n : COUNTER GATE INPUT n  
IC : INTERNALLY CONNECTED  
OUT n : COUNTER CLOCK OUTPUT n  
RD : READ COUNTER/STATUS  
WR : WRITE COMMAND/DATA

0; LOW LEVEL  
1; HIGH LEVEL  
X; DON'T CARE  
HI-Z; HIGH IMPEDANCE

CONTROL WORD FORMAT



UPD71055GB-10-3B4 (NEC) FLAT PACKAGE  
CMOS PARALLEL INTERFACE UNIT  
- TOP VIEW -

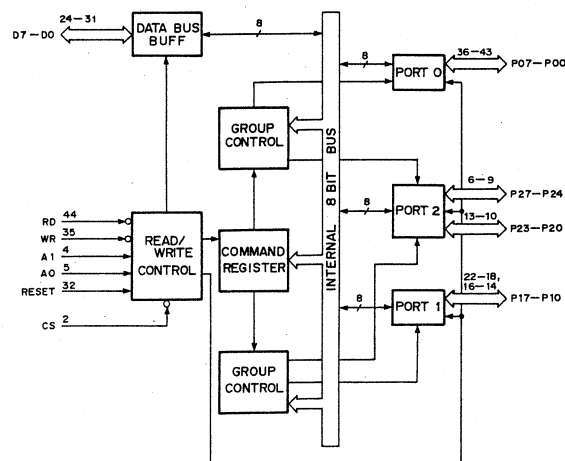


A1, A0 : ADDRESS  
CS : CHIP SELECT  
D7-D0 : DATA BUS  
P07-P00 : PORT 0  
P17-P10 : PORT 1  
P27-P20 : PORT 2  
RD : READ STROBE  
WR : WRITE STROBE

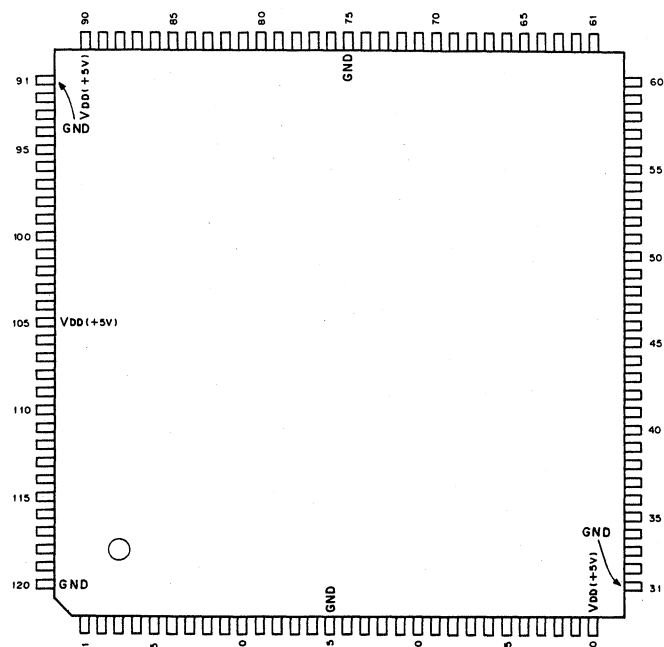
IC : INTERNALLY CONNECTED

| CS | RD | WR | A1 | AO | OPERATION                   | CPU ACTION |
|----|----|----|----|----|-----------------------------|------------|
| 0  | 0  | 1  | 0  | 0  | PROTO → DATA-BUS            | INPUT      |
| 0  | 0  | 1  | 0  | 1  | PROT 1 → DATA-BUS           | INPUT      |
| 0  | 0  | 1  | 1  | 0  | PROT 2 → DATA-BUS           | INPUT      |
| 0  | 0  | 1  | 1  | 1  | DISABLE                     |            |
| 0  | 0  | 0  | X  | X  |                             |            |
| 0  | 1  | 0  | 0  | 0  | DATA-BUS → PROTO            | OUTPUT     |
| 0  | 1  | 0  | 0  | 1  | DATA-BUS → PROT 1           | OUTPUT     |
| 0  | 1  | 0  | 1  | 0  | DATA-BUS → PROT 2           | OUTPUT     |
| 0  | 1  | 0  | 1  | 1  | DATA-BUS → COMMAND REGISTER | OUTPUT     |
| 0  | 1  | 1  | X  | X  |                             |            |
| 1  | X  | X  | X  | X  | HIGH IMPEDANCE              |            |

0; LOW LEVEL  
1; HIGH LEVEL  
X; DON'T CARE



UPD71101GD-10-5BB (NEC)

C-MOS ENCAPSULATED PERIPHERAL  
- TOP VIEW -(V<sub>DD</sub> = +5V)

| PIN No. | I/O | SIGNAL          | PIN No. | I/O | SIGNAL         | PIN No. | I/O | SIGNAL          |
|---------|-----|-----------------|---------|-----|----------------|---------|-----|-----------------|
| 1       | I/O | P27             | 41      | I/O | SA11           | 81      | I   | RXCLK0          |
| 2       | I/O | P26             | 42      | I/O | SA12           | 82      | I   | RXDATA0         |
| 3       | I/O | P25             | 43      | I/O | SUB/(BUFR/W) 1 | 83      | I/O | SYNC/BRK0       |
| 4       | I/O | P24             | 44      | O   | INT1           | 84      | O   | RXRDY0          |
| 5       | I/O | P23             | 45      | I   | INTP17         | 85      | O   | TXRDY0          |
| 6       | I/O | P22             | 46      | I   | INTP16         | 86      | O   | TXDATA0         |
| 7       | I/O | P21             | 47      | I   | INTP15         | 87      | O   | TXEMP0          |
| 8       | I/O | P20             | 48      | I   | INTP14         | 88      | O   | RTS0            |
| 9       | I/O | P10             | 49      | I   | INTP13         | 89      | O   | DTR0            |
| 10      | I/O | P11             | 50      | I   | INTP12         | 90      | -   | V <sub>DD</sub> |
| 11      | I/O | P12             | 51      | I   | INTP11         | 91      | -   | GND             |
| 12      | I/O | P13             | 52      | I   | INTP10         | 92      | I/O | D7              |
| 13      | I/O | P14             | 53      | I   | INTAK1         | 93      | I/O | D6              |
| 14      | I/O | P15             | 54      | I   | CS1            | 94      | I/O | D5              |
| 15      | -   | GND             | 55      | I   | CS10           | 95      | I/O | D4              |
| 16      | I/O | P16             | 56      | I   | INTAK0         | 96      | I/O | D3              |
| 17      | I/O | P17             | 57      | I   | INTPO7         | 97      | I/O | D2              |
| 18      | I   | CSB             | 58      | I   | INTPO6         | 98      | I/O | D1              |
| 19      | I   | BCLK            | 59      | I   | INTPO5         | 99      | I/O | D0              |
| 20      | I   | RXDATA1         | 60      | I   | INTPO4         | 100     | I   | CST             |
| 21      | I   | TXCLK1          | 61      | I   | INTPO3         | 101     | I   | TCLK0           |
| 22      | I   | CS1             | 62      | I   | INTPO2         | 102     | I   | GATE0           |
| 23      | I   | CT1             | 63      | I   | INTPO1         | 103     | O   | OUT0            |
| 24      | I   | SCLK1           | 64      | I   | INTPO0         | 104     | I   | TCLK0           |
| 25      | I   | DSR1            | 65      | O   | INT0           | 105     | -   | V <sub>DD</sub> |
| 26      | I   | RXCLK1          | 66      | I/O | SUB/(BUFR/W) 0 | 106     | I   | GATE1           |
| 27      | O   | RXRDY1          | 67      | I/O | SA02           | 107     | O   | OUT1            |
| 28      | O   | TXRDY1          | 68      | I/O | SA01           | 108     | I   | TCLK2           |
| 29      | I/O | SYNC/BRK1       | 69      | I/O | SA00           | 109     | I   | GATE2           |
| 30      | -   | V <sub>DD</sub> | 70      | I   | WR             | 110     | O   | OUT2            |
| 31      | -   | GND             | 71      | I   | RD             | 111     | I/O | PO7             |
| 32      | O   | RXBLOCK         | 72      | I   | A0             | 112     | I/O | PO6             |
| 33      | O   | RXACLOCK        | 73      | I   | A1             | 113     | I/O | PO5             |
| 34      | O   | TXBLOCK         | 74      | I   | RESET          | 114     | I/O | PO4             |
| 35      | O   | TXACLOCK        | 75      | -   | GND            | 115     | I/O | PO3             |
| 36      | O   | TXDATA1         | 76      | I   | CS0            | 116     | I/O | PO2             |
| 37      | O   | TXEMP1          | 77      | I   | TXCLK0         | 117     | I/O | PO1             |
| 38      | O   | RTS1            | 78      | I   | CTS0           | 118     | I/O | PO0             |
| 39      | O   | DTR1            | 79      | I   | SCLK0          | 119     | I   | CSP             |
| 40      | I/O | SA10            | 80      | I   | DSR0           | 120     | -   | GND             |

|     |           |      |    |
|-----|-----------|------|----|
| 76  | CS0       | DO   | 99 |
| 22  | CS1       | D1   | 98 |
| 100 | CST       | D3   | 97 |
| 119 | CSP       | D5   | 96 |
| 95  | CS10      | D7   | 95 |
| 94  | CS11      | D9   | 94 |
| 18  | CSB       | D11  | 93 |
| 70  | WR        | D13  | 92 |
| 71  | RD        | D15  | 91 |
| 72  | A0        | D17  | 90 |
| 73  | A1        | D19  | 89 |
| 56  | INTAK0    | D21  | 88 |
| 53  | INTAK1    | D23  | 87 |
| 66  | SUB0      | D25  | 86 |
| 43  | SUB1      | D27  | 85 |
| 102 | GATE0     | D29  | 84 |
| 106 | GATE1     | D31  | 83 |
| 109 | GATE2     | D33  | 82 |
| 101 | TCLK0     | D35  | 81 |
| 104 | TCLK1     | D37  | 80 |
| 108 | TCLK2     | D39  | 79 |
| 79  | SCLK0     | D41  | 78 |
| 77  | TXCLK0    | D43  | 77 |
| 81  | RXCLK0    | D45  | 76 |
| 83  | SYNC/BRK0 | D47  | 75 |
| 24  | SCLK1     | D49  | 74 |
| 21  | TXCLK1    | D51  | 73 |
| 26  | RXCLK1    | D53  | 72 |
| 29  | SYNC/BRK1 | D55  | 71 |
| 35  | TXACLOCK  | D57  | 70 |
| 33  | RXACLOCK  | D59  | 69 |
| 34  | TXBLOCK   | D61  | 68 |
| 32  | RXBLOCK   | D63  | 67 |
| 19  | BCLK      | D65  | 66 |
| 64  | INTPO0    | D67  | 65 |
| 63  | INTPO1    | D69  | 64 |
| 62  | INTPO2    | D71  | 63 |
| 61  | INTPO3    | D73  | 62 |
| 60  | INTPO4    | D75  | 61 |
| 59  | INTPO5    | D77  | 60 |
| 58  | INTPO6    | D79  | 59 |
| 57  | INTPO7    | D81  | 58 |
| 92  | INTP10    | D83  | 57 |
| 51  | INTP11    | D85  | 56 |
| 50  | INTP12    | D87  | 55 |
| 49  | INTP13    | D89  | 54 |
| 48  | INTP14    | D91  | 53 |
| 47  | INTP15    | D93  | 52 |
| 46  | INTP16    | D95  | 51 |
| 45  | INTP17    | D97  | 50 |
| 80  | DSR0      | D99  | 49 |
| 79  | CTS0      | D101 | 48 |
| 20  | RXDATA1   | D103 | 47 |
| 23  | DSR1      | D105 | 46 |
| 74  | RESET     | D107 | 45 |

## UPD71059GB-10-3B4 (NEC) FLAT PACKAGE

## CMOS INTERRUPT CONTROL UNIT

## - TOP VIEW -

**INPUT**

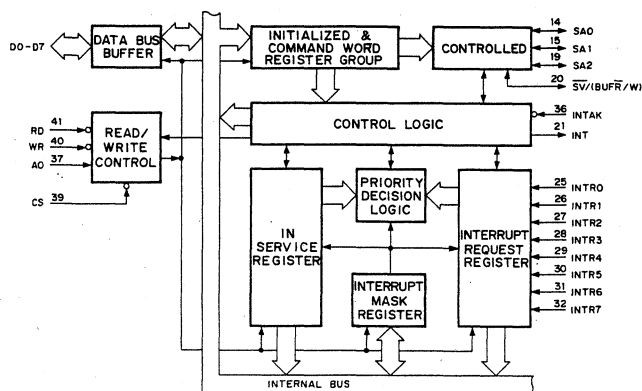
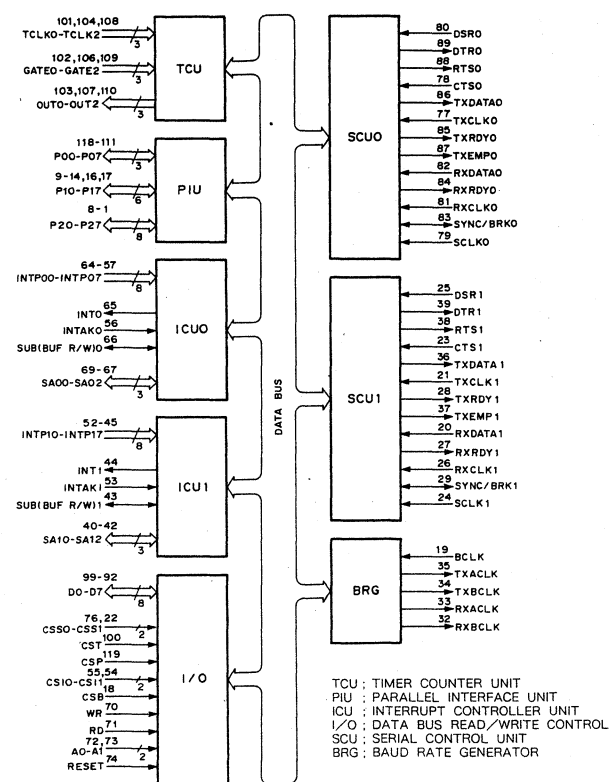
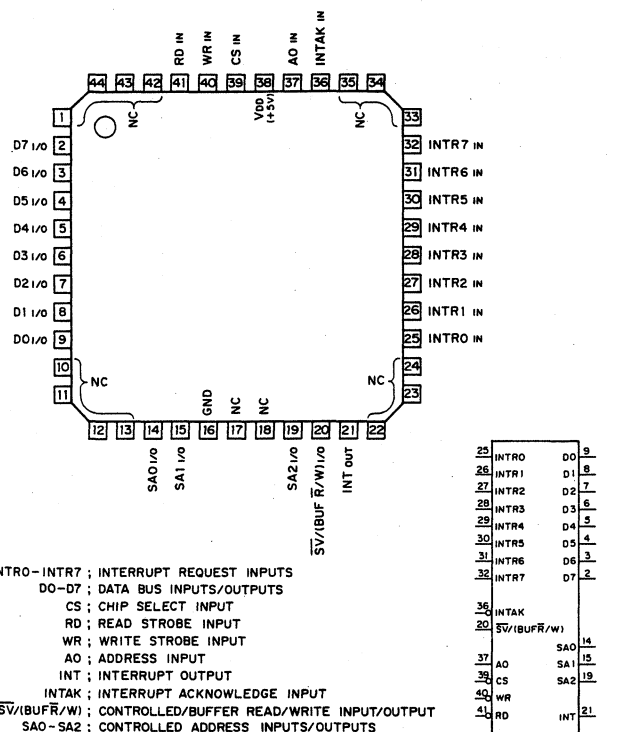
A0, A1 : REGISTER SELECTING  
 BCLK : CLOCK FOR BAUD RATE GENERATING  
 CSB : BRG UNIT SELECT  
 CS10 : INTERRUPT CONTROL UNIT 0 SELECT  
 CS11 : INTERRUPT CONTROL UNIT 1 SELECT  
 CSP : PARALLEL INTERFACE UNIT SELECT  
 CSS0 : SERIAL CONTROL UNIT 0 SELECT  
 CSS1 : SERIAL CONTROL UNIT 1 SELECT  
 CST : TIMER COUNTER UNIT SELECT  
 CTS0, CTS1 : TRANSFER CONTROL  
 DSR0, DSR1 : MODEM CONTROL/GENERAL PURPOSE  
 GATE0 - GATE2 : COUNTER CONTROL  
 INTAK0 - INTAK1 : INTERRUPTION ACKNOWLEDGE (FROM CPU TO ICU)  
 INTP00 - INTP07 : ASYNCHRONOUS MODE INTERRUPT REQUEST FOR INTERRUPT CONTROL UNIT  
 INTP10 - INTP17 : READING  
 RD : INITIALIZE  
 RESET : REFERENCE CLOCK FOR DECIDING RECEPTION RATE  
 RXCLK0, RXCLK1 : RECEIVES SERIAL DATA  
 RXDATA0, RXDATA1 : COLCK FOR SCU INTERNAL TIMING  
 SCLK0, SCLK1 : CLOCK (0 TO 10MHz) FOR COUNTER RATE  
 TCLK0 - TCLK2 : REFERENCE CLOCK FOR TRANSFER RATE  
 TXCLK0 - TXCLK1 : WRITE

**OUTPUT**

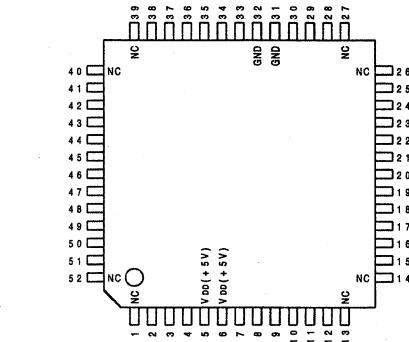
DTR0, DTR1 : MODEM CONTROL/GENERAL PURPOSE  
 INTO, INT1 : INTERRUPT REQUEST  
 (FROM ICU TO CPU OR MASTER ICU)  
 OUT0 - OUT2 : COUNTER OUTPUT/INTERRUPTION REQUEST FOR TCU  
 RTS0 - RTS1 : MODEM CONTROL/GENERAL PURPOSE  
 RXACLOCK : RECEIVED CLOCK OF BAND RATE GENERATOR  
 RXBCLOCK : READING INTERRUPT REQUEST FOR CPU,  
 RXRDY0, RXRDY1 : RECEIVED DATA STATUS  
 TXACLOCK : TRANSFER CLOCK OF BAND RATE GENERATOR  
 TXBCLOCK : SERIAL DATA  
 TXDATA0, TXDATA1 : TRANSMITTER BUFFER AND TRANSMIT  
 TXEMP0, TXEMP1 : DATA BUFFER STATUS  
 TXRDY0, TXRDY1 : WRITING ACKNOWLEDGE/WRITING  
 INTERRUPT REQUEST FOR CPU

**INPUT/OUTPUT**

DO - D7 : BI-DIRECTIONAL DATA BUS OF 8-BITS TRI-STATE  
 SYNC/BRK0, SYNC/BRK1 : SYNC IN OR OUTPUT /BRK CONDITION DETECT OUTPUT  
 (SYNCHRONOUS MODE)  
 P00 - P07 : PORT0  
 P10 - P17 : PORT1  
 P20 - P27 : PORT2  
 SA00 - SA02 : ICU CONTROL OUTPUT (MASTER MODE)  
 SA10 - SA12 : /ICU CONTROL INPUT (SUB MODE)  
 SUB/BUF R/W 1 : SUB/MASTER SELECT (NO-BUFFER MODE),  
 SUB/BUF R/W 2 : BUS TRANSEIVER CONTROL OUTPUT (BUFFER MODE)

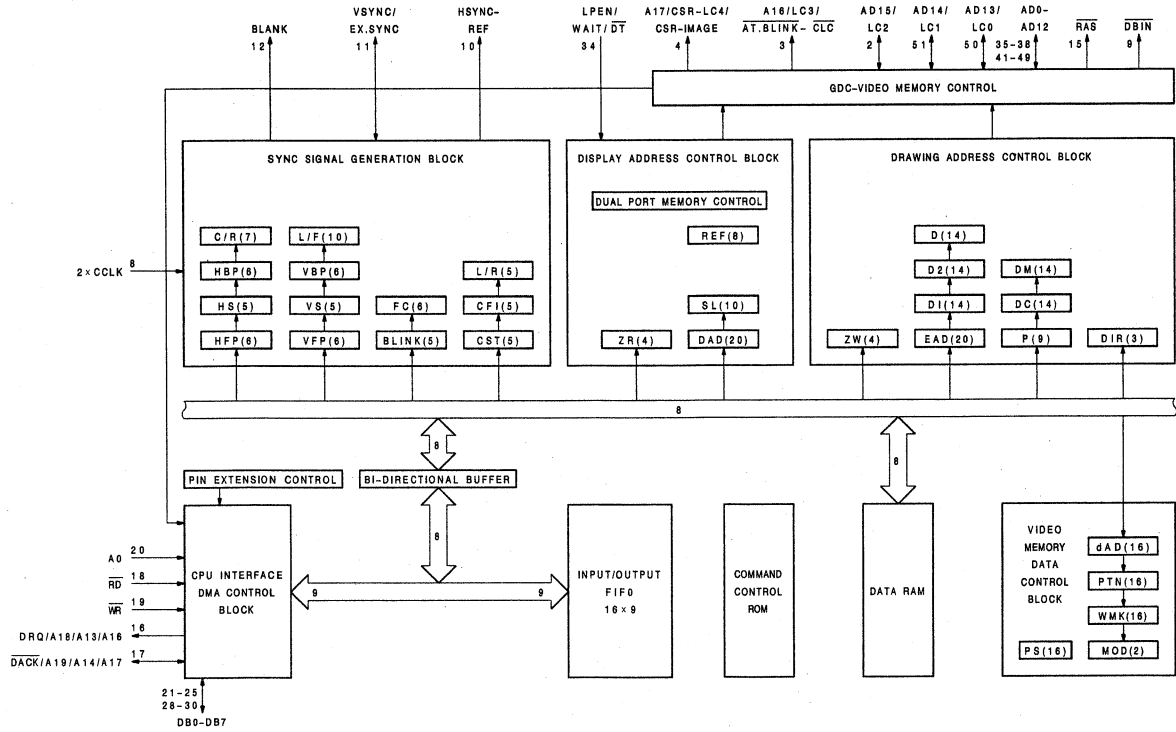
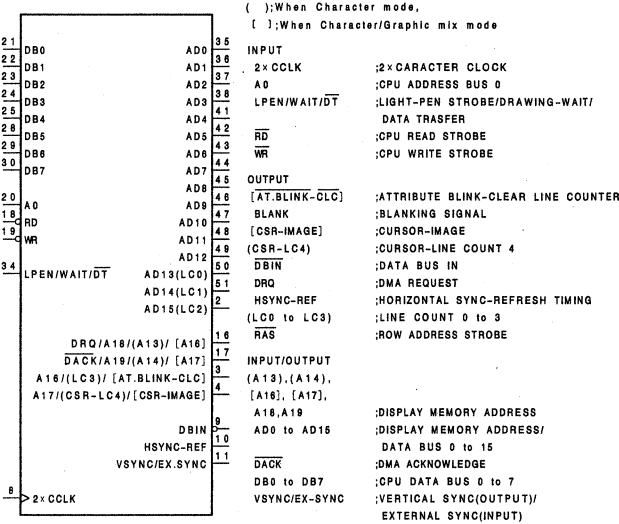


UPD72020GC-8-3B6 (NEC) FLAT PACKAGE  
C-MOS GRAPHIC DISPLAY CONTROLLER  
- TOP VIEW -



| (VDD = +5V) |     |                           |         |     |              |         |     |
|-------------|-----|---------------------------|---------|-----|--------------|---------|-----|
| PIN No.     | I/O | SIGNAL                    | PIN No. | I/O | SIGNAL       | PIN No. | I/O |
| 1           | -   | NC                        | 18      | I   | WR           | 37      | I/O |
| 2           | I/O | AD15/(LC2)                | 20      | I   | A0           | 38      | I/O |
| 3           | O   | A16/(LC3)/[AT.BLINK-CLC]  | 21      | I/O | DB0          | 39      | -   |
| 4           | O   | A17/(CSR-LC4)/[CSR-IMAGE] | 22      | I/O | DB1          | 40      | -   |
| 5           | -   | VDD                       | 23      | I/O | DB2          | 41      | I/O |
| 6           | -   | VDD                       | 24      | I/O | DB3          | 42      | I/O |
| 7           | -   | IC                        | 25      | I/O | DB4          | 43      | I/O |
| 8           | I   | 2xCCLK                    | 26      | -   | NC           | 44      | I/O |
| 9           | O   | DBIN                      | 27      | -   | NC           | 45      | I/O |
| 10          | O   | HSYNC-REF                 | 28      | I/O | DB5          | 46      | I/O |
| 11          | I/O | VSXNC/EX.SYNC             | 29      | I/O | DB6          | 47      | I/O |
| 12          | O   | BLANK                     | 30      | I/O | DB7          | 48      | I/O |
| 13          | -   | NC                        | 31      | -   | GND          | 49      | I/O |
| 14          | -   | NC                        | 32      | -   | GND          | 50      | I/O |
| 15          | O   | RAS                       | 33      | -   | IC           | 51      | I/O |
| 16          | O   | DRQ/A18/(A13)/[A16]       | 34      | I   | LPEN/WAIT/DT | 52      | -   |
| 17          | I/O | DACK/A19/(A14)/[A17]      | 35      | I/O | A0           |         |     |
| 18          | I   | RD                        | 36      | I/O | AD1          |         |     |

IC: Internally Connected, ( ): When Character mode, [ ]: When Character/Graphic mix mode



## SECTION 7 SPARE PARTS

### 7-1. NOTES ON SPARE PARTS

### 補修用部品注意事項

#### (1) Safety Related Components Warning

Components marked with  $\Delta$  on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation.

Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

#### (1) 安全重要部品

回路図、分解図、電気部品表中、 $\Delta$ 印の部品は安全性を維持するために重要な部品です。従ってこれらの部品を交換するときには必ず指定の部品と交換して下さい。

#### (2) Standardization of Parts

Repair parts supplied from Sony Parts Center may not be always identical with the parts which actually in use due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts".

This manual's exploded views and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present".

#### (2) 部品の共通化

ソニーから供給される部品セットに実装されているものと異なることがあります。これは部品の共通化、改良等によるものです。

分解図や電気部品表には現時点での共通化された部品が記載されています。

#### (3) Stock of Parts

Parts marked with "o" SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

#### (3) 部品の在庫

部品表のSP (Supply code) 欄に o で示される部品は交換頻度が低い部品ですので在庫していないことがあり、納期が長くなることがあります。

#### (4) Units for Capacitors, Inductors and Resistors

The following units are assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.

Capacitors :  $\mu\text{F}$   
Inductors :  $\mu\text{H}$   
Resistors :  $\Omega$

#### (4) コンデンサー、インダクター、抵抗の単位

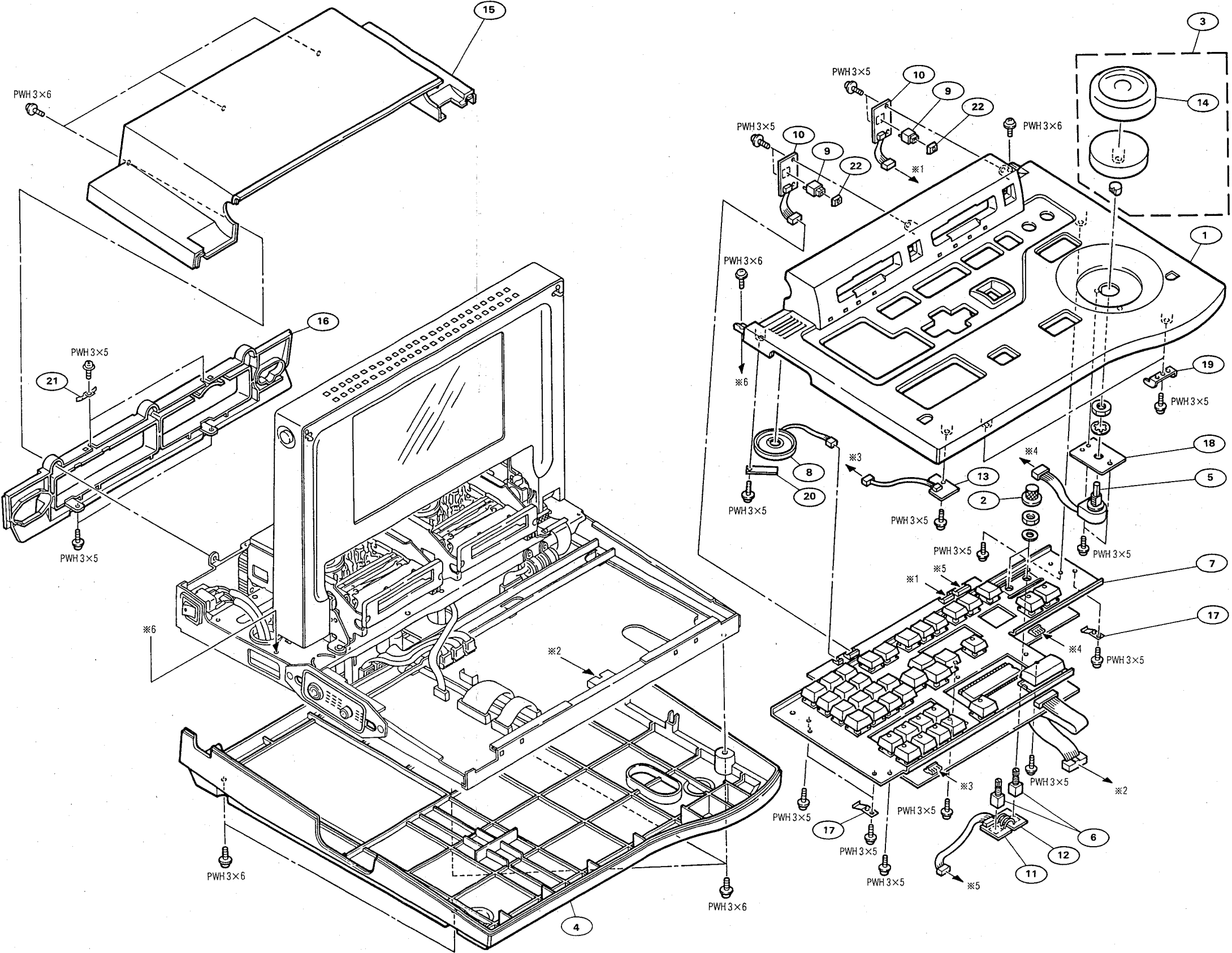
回路図、分解図、電気部品表中、特に明記したものを除き、下記の単位は省略されています。

コンデンサー :  $\mu\text{F}$   
インダクター :  $\mu\text{H}$   
抵抗 :  $\Omega$

7-2. EXPLODED VIEWS AND PARTS

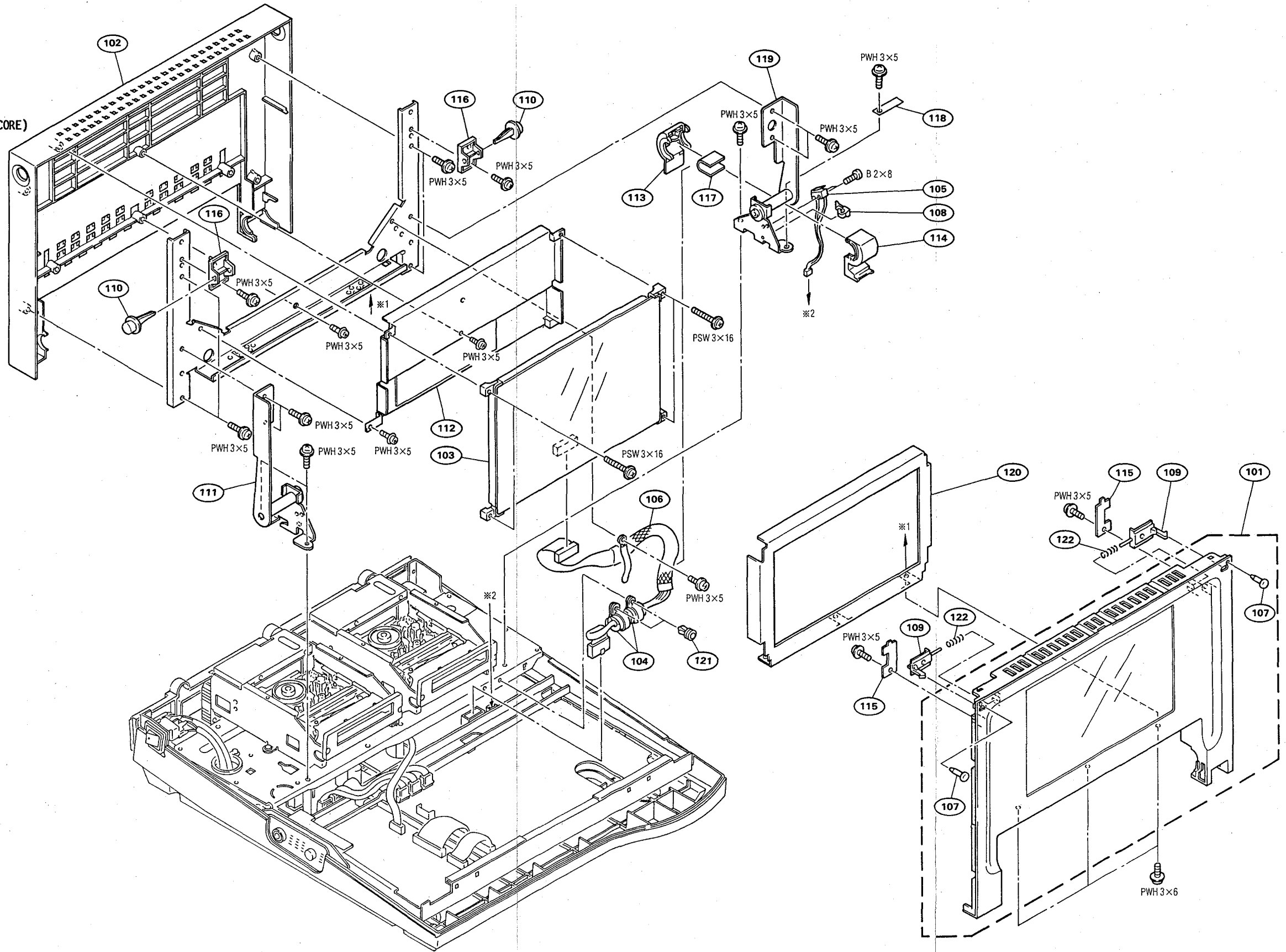
CABINET AND KEY ASSY

| No. | Part No.     | SP Description                   |
|-----|--------------|----------------------------------|
| 1   | X-3678-029-3 | o PANEL ASSY, KEY                |
| 2   | X-3678-031-1 | o KNOB ASSY                      |
| 3   | X-3678-032-1 | s DIAL, ASSY                     |
| 4   | X-3678-034-1 | o BOARD,BOTTOM ASSY              |
| 5   | 1-466-955-11 | s ENCODER, ROTARY                |
| 6   | 1-467-523-11 | s ENCODER, ROTARY                |
| 7   | 1-467-524-11 | o KEY BOARD UNIT                 |
| 8   | 1-544-578-11 | s SPEAKER                        |
| 9   | 1-571-655-21 | o SWITCH, TACTIL                 |
| 10  | 1-650-074-11 | s PRINTED CIRCUIT BOARD, KY-147  |
| 11  | 1-650-078-11 | s PRINTED CIRCUIT BOARD, VR-154  |
| 12  | 1-650-079-11 | s PRINTED CIRCUIT BOARD, VR-181  |
| 13  | 1-650-080-11 | s PRINTED CIRCUIT BOARD, LED-160 |
| 14  | 3-179-110-01 | s COVER, DIAL                    |
| 15  | 3-678-367-02 | o BOARD, TOP                     |
| 16  | 3-678-369-02 | o PANEL, REAR                    |
| 17  | 3-678-374-02 | o PLATE, GROUND (KY)             |
| 18  | 3-678-377-01 | o PLATE,ENCODER                  |
| 19  | 3-678-382-01 | o BRACKET, KY                    |
| 20  | 3-678-389-01 | o CLAMP, SPEAKER                 |
| 21  | 3-678-478-01 | o PLATE, GROUND (TB)             |
| 22  | 4-928-315-81 | s KEY TOP                        |



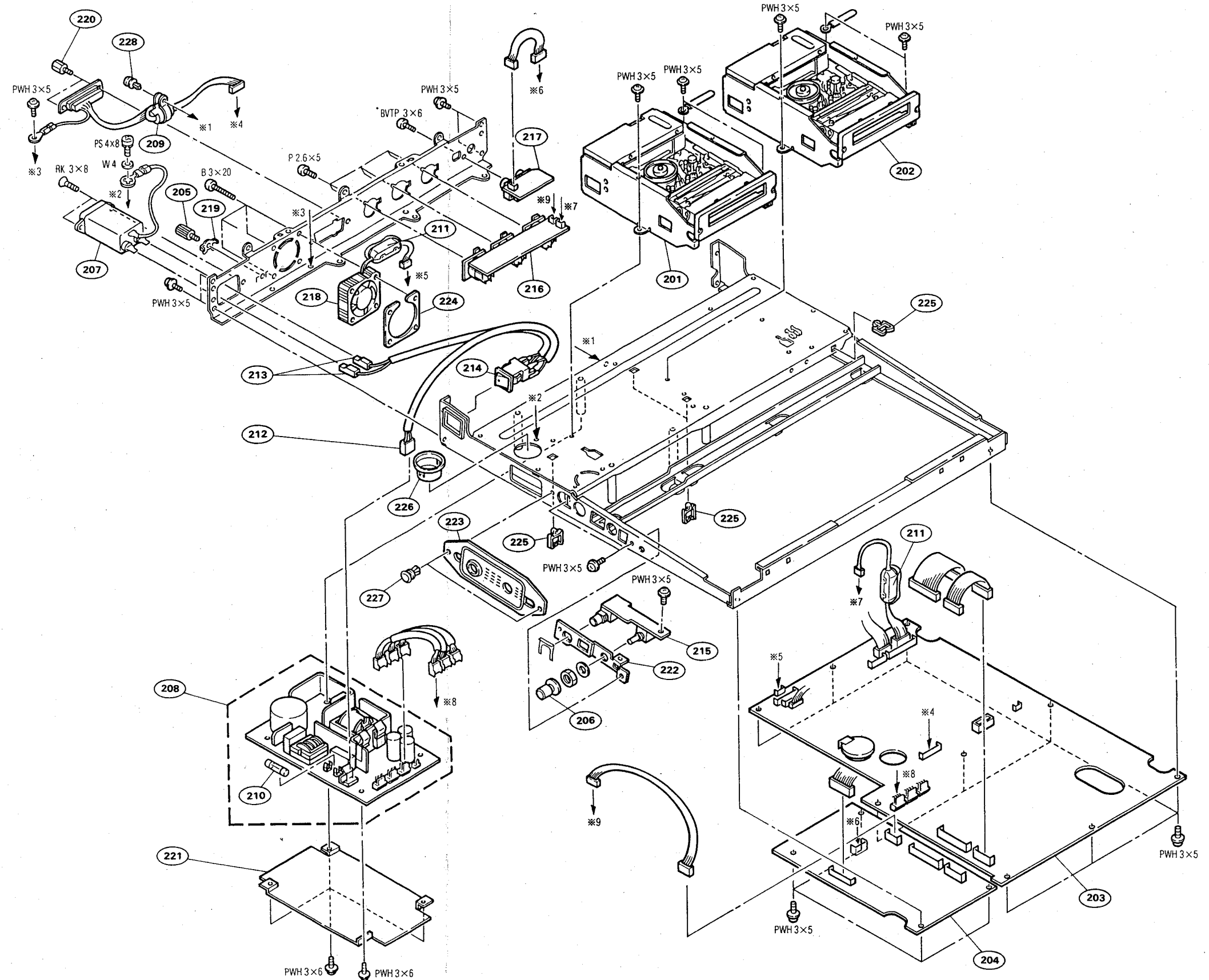
DISPLAY ASSY

| No. | Part No.     | SP Description                 |
|-----|--------------|--------------------------------|
| 101 | X-3678-030-3 | o PANEL(DP), FRONT ASSY        |
| 102 | X-3678-033-2 | o PANEL(DP), REAR ASSY         |
| 103 | 1-466-954-11 | s DISPLAY UNIT, EL             |
| 104 | 1-500-082-11 | s FILTER, CLAMP (FERRITE CORE) |
| 105 | 1-570-028-11 | s SWITCH, MICRO                |
| 106 | 1-952-582-11 | o HARNESS, SUB (EL)            |
| 107 | 3-351-878-01 | s FOOT, RUBBER                 |
| 108 | 3-672-420-00 | o CLAMP (T=1.6)                |
| 109 | 3-678-363-01 | o LOCK CLAW                    |
| 110 | 3-678-370-01 | o BUTTON(DP), LOCK             |
| 111 | 3-678-371-02 | o UNIT, TILT(L)                |
| 112 | 3-678-373-02 | o DP PLATE, SHIELD             |
| 113 | 3-678-378-02 | o ROLLER(A), HARNESS           |
| 114 | 3-678-379-02 | o ROLLER(B), HARNESS           |
| 115 | 3-678-384-01 | o LID(DP) L, KNOB              |
| 116 | 3-678-387-01 | o TABLE(DP), BUTTON            |
| 117 | 3-678-388-02 | o COVER, SHAFT                 |
| 118 | 3-678-389-01 | o CLAMP, SPEAKER               |
| 119 | 3-678-391-02 | o UNIT, TILT(R)                |
| 120 | 3-678-479-01 | o PLATE, SHIELD (DPF)          |
| 121 | 3-183-850-01 | s NYLON RIVET DIA. 4x7         |
| 122 | 4-861-930-01 | s SPRING, COMPRESSION          |



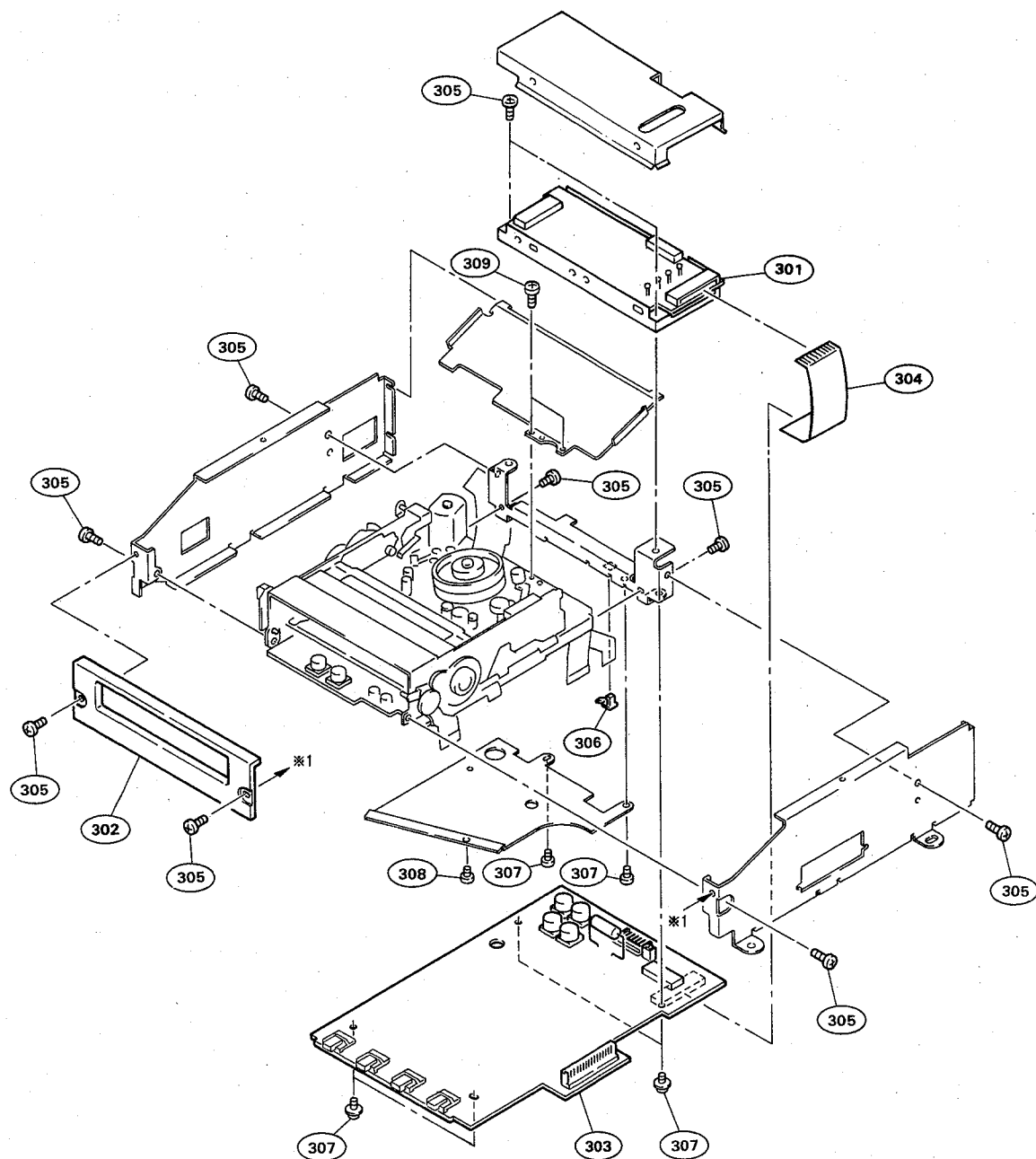
MAIN CHASSIS ASSY

| No. | Part No.      | SP Description  |
|-----|---------------|---|
| 201 | A-8267-997-A  | s DECK(PLAYER) ASSY, MECHANICAL<br>(MT-PCM-E7700 P-103)   |
| 202 | A-8267-999-A  | s DECK(RECORDER) ASSY, MECHANICAL<br>(MT-PCM-E7700 R-103) |
| 203 | A-8275-316-A  | o COMPLETE PCB, SSP-8                                     |
| 204 | A-8275-317-A  | o COMPLETE PCB, ADA-31                                    |
| 205 | X-2068-004-1  | s TERMINAL ASSY   |
| 206 | X-3678-031-1  | o KNOB ASSY   |
| 207 | Δ1-251-148-11 | s INLET, AC(3P)   |
| 208 | Δ1-413-647-11 | s SWITCHING REGULATOR                                     |
| 209 | 1-500-082-11  | s FILTER, CLAMP (FERRITE CORE)                            |
| 210 | 1-532-827-11  | s FUSE (MT4-3A-N1)  |
| 211 | 1-543-793-11  | s FILTER, CLAMP (FERRITE CORE)                            |
| 212 | Δ1-560-764-21 | o TERMINAL, SOLDERLESS                                    |
| 212 | Δ1-562-817-11 | o HOUSING, CONNECTOR 2P                                   |
| 213 | Δ1-565-787-21 | o CONTACT, RECEPTACLE 1P                                  |
| 214 | Δ1-570-455-11 | s SWITCH, AC POWER SEESAW                                 |
| 215 | 1-650-075-11  | s PRINTED CIRCUIT BOARD, HP-57                            |
| 216 | 1-650-076-11  | s PRINTED CIRCUIT BOARD, CP-233                           |
| 217 | 1-650-077-11  | s PRINTED CIRCUIT BOARD, CP-234                           |
| 218 | 1-698-239-11  | s MOTOR, DC FAN   |
| 219 | 2-068-008-00  | s WASHER  |
| 220 | 3-673-910-00  | o SCREW, CONNECTOR  |
| 221 | 3-678-356-01  | o COVER, SW REG   |
| 222 | 3-678-376-01  | o BRACKET, JACK   |
| 223 | 3-678-380-01  | o PLATE, MASKING(JACK)                                    |
| 224 | 3-692-461-11  | o NUT, PLATE  |
| 225 | 3-694-225-01  | o CLAMP   |
| 226 | 3-723-749-01  | o BUSHING, SNAP   |
| 227 | 4-818-403-00  | s RIVET, NYLON  |
| 228 | 3-183-850-01  | s NYLON RIVET DIA. 4x7                                    |



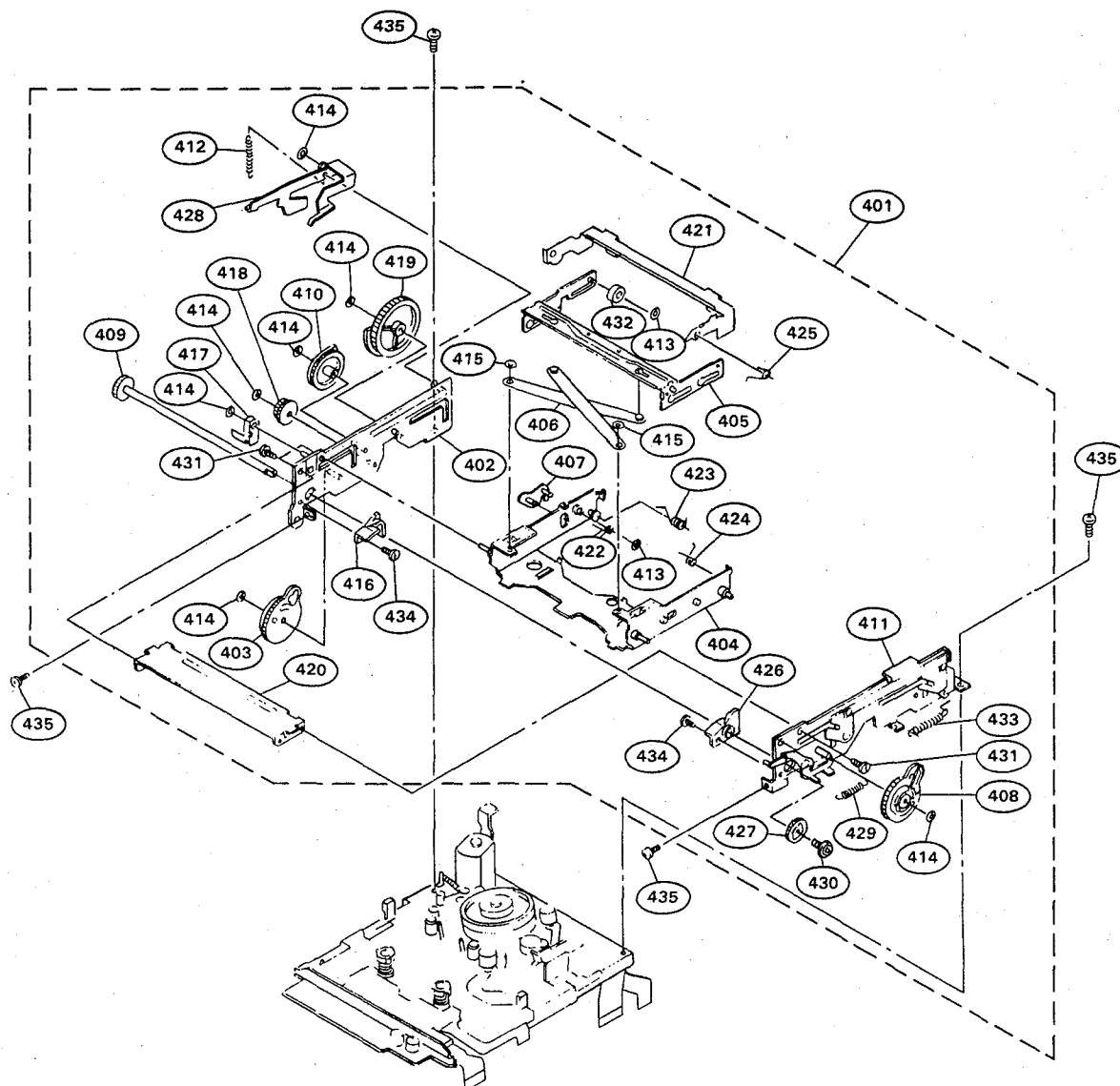


# **MECHANICAL DECK (PLAYER AND RECORDER) ASSY CASE SECTION**



| No. | Part No.     | SP Description                   |
|-----|--------------|----------------------------------|
| 301 | A-8310-132-A | o RF-53 ASSY(RP)                 |
| 302 | A-8267-753-B | o WINDOW ASSY, CASSETTE          |
| 303 | A-8310-133-A | o MOUNTED CIRCUIT BOARD, SV-147  |
| 304 | 1-764-402-11 | s WIRE, FLEXIBLE CARD(1.00MM)18P |
| 305 | 3-374-615-11 | s SCREW(M2), BIND                |
| 306 | 3-671-150-11 | o CLAMP                          |
| 307 | 3-703-502-21 | s SCREW                          |
| 308 | 7-627-850-08 | s SCREW,PRECISION +P 1.4X2       |
| 309 | 7-627-850-47 | s SCREW,PRECISION +P 1.4X1.6     |

# CASSETTE COMPARTMENT SECTION



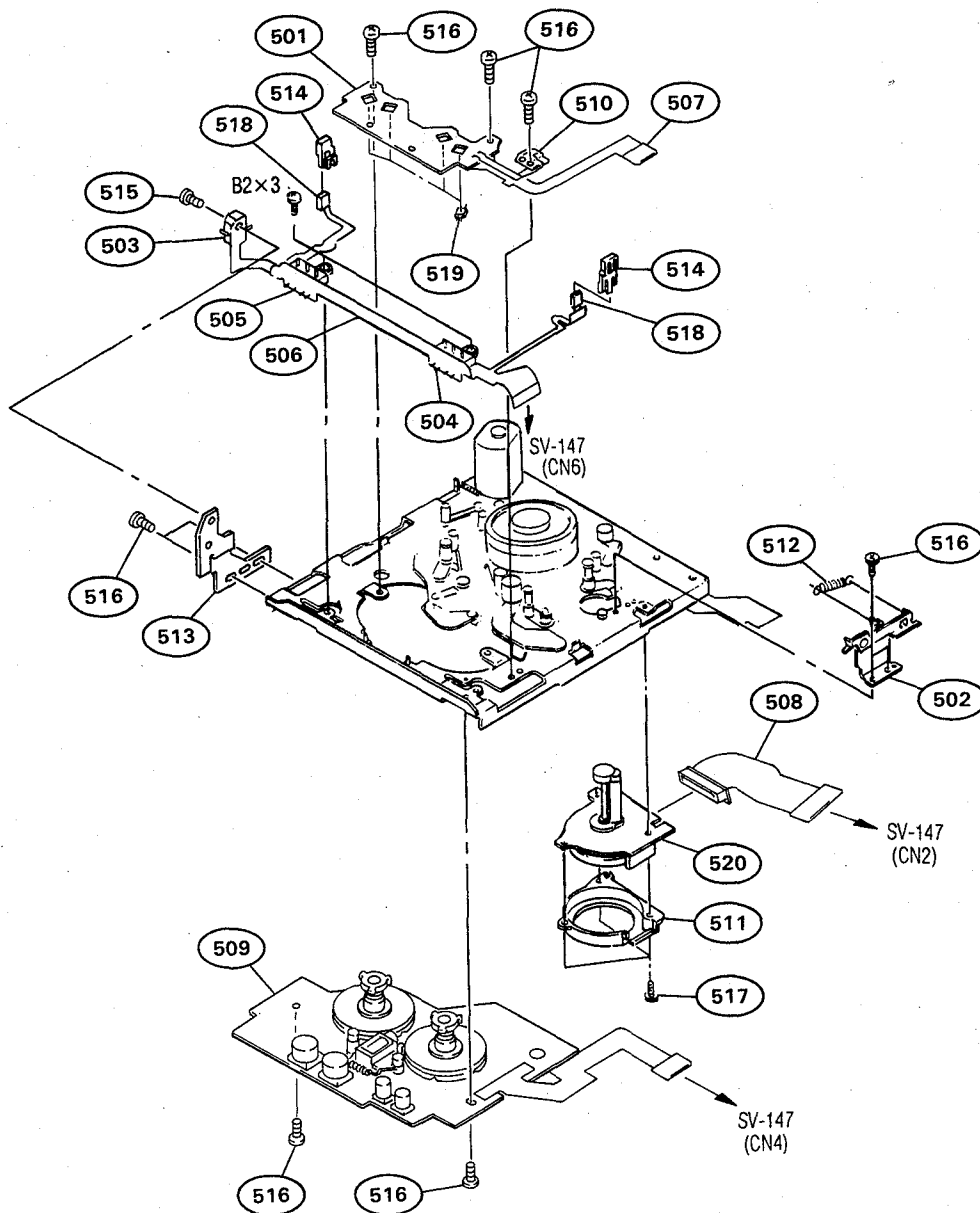
No. Part No. SP Description

|     |              |                             |
|-----|--------------|-----------------------------|
| 401 | A-8267-998-A | s CASSETTE COMPARTMENT ASSY |
| 402 | X-3363-985-5 | s PLATE (LEFT) ASSY, SIDE   |
| 403 | X-3363-986-2 | s GEAR (LEVER LEFT) ASSY    |
| 404 | X-3363-987-1 | s HOLDER ASSY, CASSETTE     |
| 405 | X-3363-989-5 | s SLIDER (CASSETTE) ASSY    |
| 406 | X-3363-990-1 | s LEVER ASSY, X             |
| 407 | X-3363-991-3 | s LEVER ASSY, SLIDER LOCK   |
| 408 | X-3363-995-2 | s GEAR (LEVER RIGHT) ASSY   |
| 409 | X-3363-996-1 | s GEAR (JOINT) ASSY         |
| 410 | X-3366-603-1 | s GEAR (C3) ASSY            |
| 411 | X-3367-014-1 | s PLATE (RIGHT) ASSY, SIDE  |
| 412 | 3-140-263-99 | s SPRING, TENSION           |
| 413 | 3-321-393-01 | s WASHER, STOPPER           |
| 414 | 3-341-752-11 | s WASHER, POLYETHYLENE      |
| 415 | 3-341-753-11 | s WASHER, POLYETHYLENE      |
| 416 | 3-374-680-01 | s GUIDE (CASSETTE LEFT)     |
| 417 | 3-374-681-01 | s LEVER (SWITCH)            |
| 418 | 3-374-686-01 | s GEAR                      |
| 419 | 3-374-688-01 | s GEAR (C2)                 |
| 420 | 3-374-689-01 | s PLATE, JOINT              |

No. Part No. SP Description

|     |              |                                    |
|-----|--------------|------------------------------------|
| 421 | 3-374-713-01 | s LEVER (CASSETTE)                 |
| 422 | 3-374-720-01 | s SPRING (SLIDER LOCK), TORSION    |
| 423 | 3-374-721-02 | s SPRING (SLIDER RETURN), TORSION  |
| 424 | 3-374-722-01 | s SPRING (LID ARM), TORSION        |
| 425 | 3-374-723-01 | s SPRING (CASSETTE LEVER), TORSION |
| 426 | 3-374-734-01 | s GUIDE (CASSETTE RIGHT)           |
| 427 | 3-374-739-01 | s GEAR (JOINT RIGHT)               |
| 428 | 3-388-228-02 | s LEVER (LID UP)                   |
| 429 | 3-561-628-00 | s SPRING, TENSION                  |
| 430 | 3-703-502-11 | s SCREW                            |
| 431 | 3-703-816-31 | s SCREW (M1.4X1.6), SPECIAL HEAD   |
| 432 | 3-904-008-01 | s ROLLER                           |
| 433 | 4-858-478-00 | s SPRING, TENSION                  |
| 434 | 7-627-850-27 | s SCREW, PRECISION +P 1.4X3        |
| 435 | 7-627-850-47 | s SCREW, PRECISION +P 1.4X1.6      |

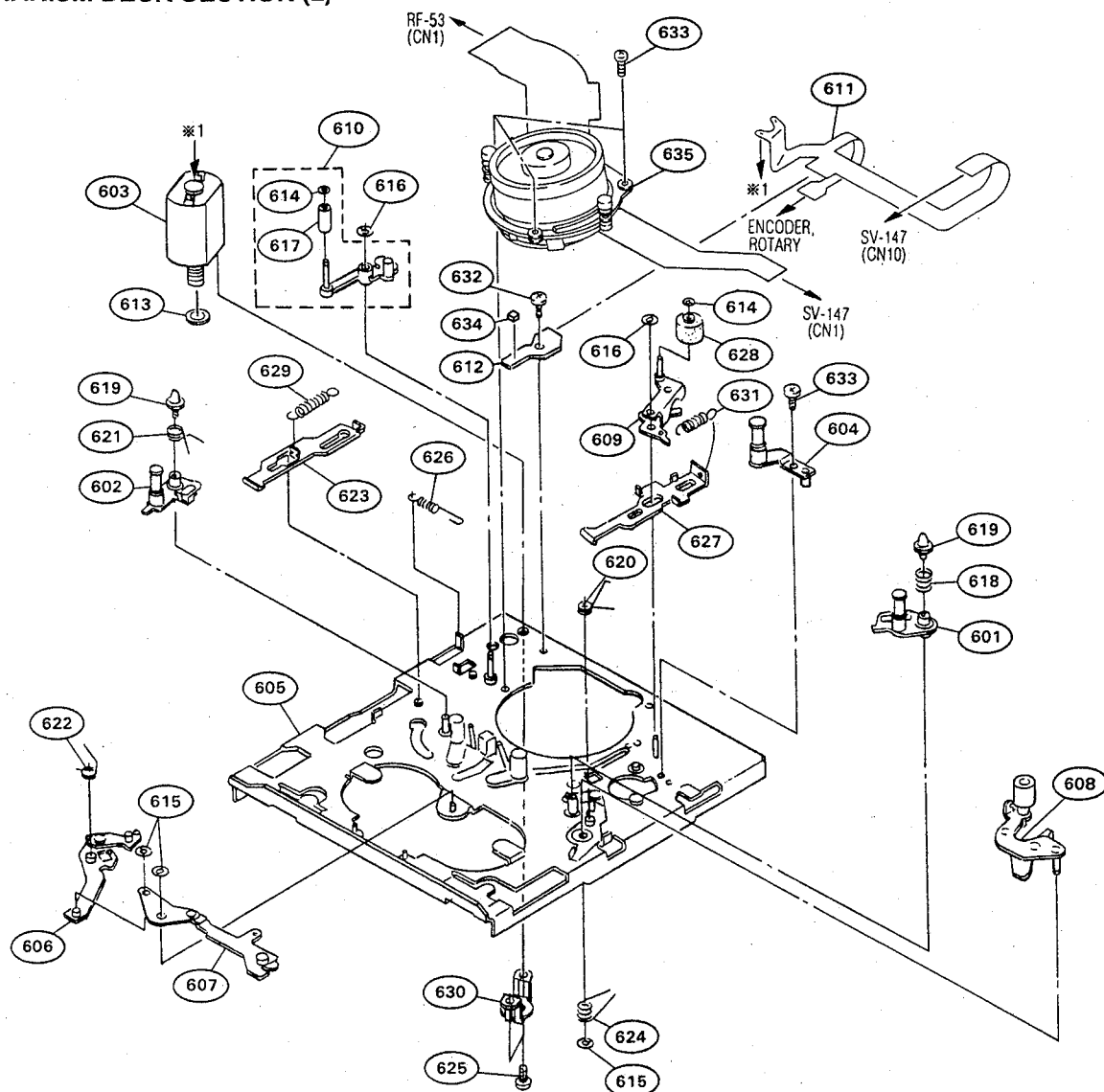
# MECHANISM DECK SECTION (1)



| No. | Part No.     | SP Description                                |
|-----|--------------|---|
| 501 | A-8276-769-A | o MOUNTED CIRCUIT BOARD, REEL FG              |
| 502 | X-3363-984-1 | s ARM ASSY, LID                               |
| 503 | 1-570-771-11 | s SWITCH                                      |
| 504 | 1-572-950-11 | s SWITCH, PUSH                                |
| 505 | 1-572-951-11 | s SWITCH, PUSH                                |
| 506 | 1-642-056-12 | s PRINTED CIRCUIT BOARD, RECOGNI END FLEXIBLE |
| 507 | 1-648-978-11 | s PRINTED CIRCUIT BOARD, REEL FG.DEW FLEXIBLE |
| 508 | 1-648-979-11 | s PRINTED CIRCUIT BOARD, CAPSTAN FLEXIBLE     |
| 509 | 1-698-227-11 | s MOTOR, REEL                                 |
| 510 | 1-809-544-12 | s SENSOR, DEW CONDENSATION                    |

| No. | Part No.     | SP Description                 |
|-----|--------------|--------------------------------|
| 511 | 3-374-654-01 | s COVER (MOTOR)                |
| 512 | 3-374-672-01 | s SPRING, TENSION              |
| 513 | 3-374-673-01 | s BRACKET (SWITCH)             |
| 514 | 3-374-674-01 | s HOLDER (ES)                  |
| 515 | 7-627-553-67 | s SCREW,PRECISION +P 2X5       |
| 516 | 7-627-850-08 | s SCREW,PRECISION +P 1.4X2     |
| 517 | 7-627-850-27 | s SCREW,PRECISION +P 1.4X3     |
| 518 | 8-729-907-25 | s PHOTO TRANSISTOR PT4850F     |
| 519 | 8-759-057-48 | s PHOTO REFLECTOR NJL5803K-F10 |
| 520 | 8-835-329-12 | s MOTOR, DC U-21A              |

## MECHANISM DECK SECTION (2)



No. Part No. SP Description

601 A-8267-743-A s ROLLER ASSY, RG  
 602 A-8267-744-A s ROLLER ASSY, LG  
 603 A-8267-759-A s MOTOR ASSY, DRIVE  
 604 A-8267-761-A s GUIDE ASSY, ROLLER  
 605 X-3363-963-1 o CHASSIS ASSY

606 X-3363-965-1 s LEVER ASSY, CAM  
 607 X-3363-966-1 s LEVER ASSY, LR  
 608 X-3363-976-1 s PINCH ROLLER ASSY  
 609 X-3363-983-1 s ARM ASSY, CR  
 610 X-3366-602-1 s TENSION REGULATOR ASSY

611 1-648-976-11 s PRINTED CIRCUIT BOARD,  
 TENTEGI MOTER ENCODER FLEXIBLE  
 612 1-648-982-11 o PRINTED CIRCUIT BOARD, TENREGI  
 613 3-320-354-01 s WASHER  
 614 3-321-393-01 s WASHER, STOPPER  
 615 3-341-752-11 s WASHER, POLYETHYLENE

616 3-341-753-11 s WASHER, POLYETHYLENE  
 617 3-360-866-01 s ROLLER (TENSION REGULATOR)  
 618 3-374-604-01 s SPRING, COMPRESSION  
 619 3-374-605-01 s SHAFT (CASSETTE)  
 620 3-374-606-01 s SPRING (R), TORSION

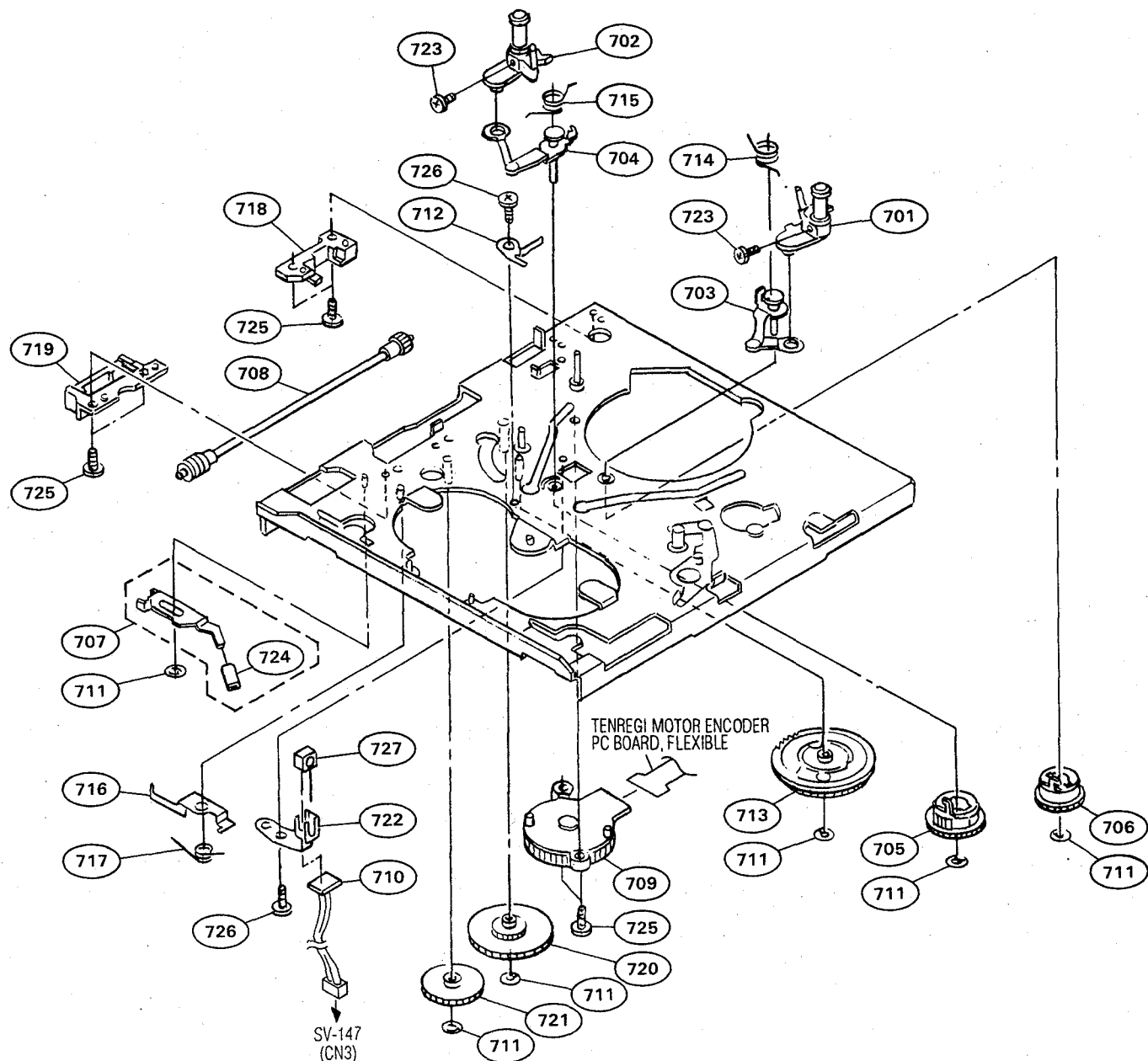
No. Part No. SP Description

621 3-374-608-01 s SPRING (LF), TORSION  
 622 3-374-609-03 s SPRING (L), TORSION  
 623 3-374-610-02 s SLIDER  
 624 3-374-635-01 s SPRING (P), TORSION  
 625 3-374-657-01 s SCREW (M2X2)

626 3-374-662-01 s SPRING, TENSION  
 627 3-374-665-01 s SLIDER, CR  
 628 3-375-727-01 s ROLLER (HC)  
 629 3-375-728-01 s SPRING, TENSION  
 630 3-379-832-01 s RETAINER, THRUST

631 3-570-776-01 s SPRING, TENSION  
 632 7-627-850-08 s SCREW,PRECISION +P 1.4X2  
 633 7-627-850-27 s SCREW,PRECISION +P 1.4X3  
 634 8-719-821-03 s ELEMENT, HALL THS117  
 635 8-848-611-11 s DRUM ASSY DOU-21A-R  
 (For MT-PCM-E7700 P-103,PLAYER)  
 8-848-612-11 s DRUM ASSY DOU-22A-R  
 (For MT-PCM-E7700 R-103,RECORDER)

# MECHANISM DECK SECTION (3)



No. Part No. SP Description

701 X-3363-969-1 s ROLLER ASSY, SLANT GUIDE (T)  
 702 X-3363-972-3 s ROLLER ASSY, SLANT GUIDE (S)  
 703 X-3363-974-1 s ARM (T) ASSY, LOADING  
 704 X-3363-975-1 s ARM (S) ASSY, LOADING  
 705 X-3363-978-1 s GEAR (S) ASSY, LOADING

706 X-3363-979-3 s GEAR (T) ASSY, LOADING  
 707 X-3363-980-1 s PLATE ASSY, SPOOL, REEL  
 708 X-3363-981-1 s GEAR ASSY, DRIVE  
 709 1-466-670-21 s ENCODER, ROTARY  
 710 1-642-088-11 o PRINTED CIRCUIT BOARD, GOMA

711 3-341-753-11 s WASHER, POLYETHYLENE  
 712 3-374-628-02 s PLATE, LOAD, PRE  
 713 3-374-636-01 s GEAR, CAM  
 714 3-374-641-01 s SPRING (T), TORSION  
 715 3-374-642-02 s SPRING (S), TORSION

No. Part No. SP Description

716 3-374-645-01 o RETAINER, SPOOL PLATE  
 717 3-374-646-01 s SPRING (SPOOL PLATE), TORSION  
 718 3-374-647-01 s RETAINER (A), DRIVE SHAFT  
 719 3-374-648-01 s RETAINER (B), DRIVE SHAFT  
 720 3-374-652-01 s GEAR (M2)

721 3-374-653-01 s GEAR (MD WHEEL)  
 722 3-374-655-01 s BRACKET (LED)  
 723 3-704-246-31 s SCREW (P1.4X2.5)  
 724 4-866-397-00 o CUSHION, LED  
 725 7-627-850-27 s SCREW,PRECISION +P 1.4X3

726 7-627-850-47 s SCREW,PRECISION +P 1.4X1.6  
 727 8-719-988-42 s DIODE GL453S

### 7-3. ELECTRICAL PARTS LIST

#### CAPACITOR, CHIP CERAMIC

##### Part No. SP Description

|              |   |                   |        |     |     |
|--------------|---|-------------------|--------|-----|-----|
| 1-163-019-00 | s | CAP, CHIP CERAMIC | 6800pF | 10% | 50V |
| 1-163-038-00 | s | CAP, CHIP CERAMIC | 0.1    |     | 50V |
| 1-163-125-00 | s | CAP, CHIP CERAMIC | 220pF  | 5%  | 50V |
| 1-163-127-00 | s | CAP, CHIP CERAMIC | 270pF  | 5%  | 50V |
| 1-163-131-00 | s | CAP, CHIP CERAMIC | 390pF  | 5%  | 50V |

|              |   |                   |       |    |     |
|--------------|---|-------------------|-------|----|-----|
| 1-163-133-00 | s | CAP, CHIP CERAMIC | 470pF | 5% | 50V |
| 1-163-227-11 | s | CAP, CHIP CERAMIC | 10pF  | 5% | 50V |
| 1-163-229-11 | s | CAP, CHIP CERAMIC | 12pF  | 5% | 50V |
| 1-163-235-11 | s | CAP, CHIP CERAMIC | 22pF  | 5% | 50V |
| 1-163-239-11 | s | CAP, CHIP CERAMIC | 33pF  | 5% | 50V |

|              |   |                   |       |    |     |
|--------------|---|-------------------|-------|----|-----|
| 1-163-243-11 | s | CAP, CHIP CERAMIC | 47pF  | 5% | 50V |
| 1-163-251-11 | s | CAP, CHIP CERAMIC | 100pF | 5% | 50V |
| 1-163-257-11 | s | CAP, CHIP CERAMIC | 180pF | 5% | 50V |
| 1-163-275-11 | s | CAP, CHIP CERAMIC | 0.001 | 5% | 50V |
| 1-163-833-00 | s | CAP, CHIP CERAMIC | 0.068 |    | 25V |

#### CAPACITOR, CHIP TANTALUM

##### Part No. SP Description

|              |   |                    |      |     |      |
|--------------|---|--------------------|------|-----|------|
| 1-135-073-00 | s | CAP, CHIP TANTALUM | 0.33 | 10% | 35V  |
| 1-135-208-11 | s | CAP, CHIP TANTALUM | 1    | 20% | 10V  |
| 1-135-217-21 | s | CAP, CHIP TANTALUM | 15   | 20% | 6.3V |
| 1-135-227-11 | s | CAP, CHIP TANTALUM | 100  | 20% | 6.3V |
| 1-135-259-11 | s | CAP, CHIP TANTALUM | 10   | 20% | 6.3V |

#### RESISTOR, CHIP

##### Part No. SP Description

|              |   |           |     |    |       |
|--------------|---|-----------|-----|----|-------|
| 1-216-001-00 | s | RES, CHIP | 10  | 5% | 1/10W |
| 1-216-009-00 | s | RES, CHIP | 22  | 5% | 1/10W |
| 1-216-017-00 | s | RES, CHIP | 47  | 5% | 1/10W |
| 1-216-021-00 | s | RES, CHIP | 68  | 5% | 1/10W |
| 1-216-025-00 | s | RES, CHIP | 100 | 5% | 1/10W |

|              |   |           |     |    |       |
|--------------|---|-----------|-----|----|-------|
| 1-216-029-00 | s | RES, CHIP | 150 | 5% | 1/10W |
| 1-216-033-00 | s | RES, CHIP | 220 | 5% | 1/10W |
| 1-216-035-00 | s | RES, CHIP | 270 | 5% | 1/10W |
| 1-216-037-00 | s | RES, CHIP | 330 | 5% | 1/10W |
| 1-216-039-00 | s | RES, CHIP | 390 | 5% | 1/10W |

|              |   |           |      |    |       |
|--------------|---|-----------|------|----|-------|
| 1-216-041-00 | s | RES, CHIP | 470  | 5% | 1/10W |
| 1-216-049-00 | s | RES, CHIP | 1K   | 5% | 1/10W |
| 1-216-051-00 | s | RES, CHIP | 1.2K | 5% | 1/10W |
| 1-216-055-00 | s | RES, CHIP | 1.8K | 5% | 1/10W |
| 1-216-057-00 | s | RES, CHIP | 2.2K | 5% | 1/10W |

|              |   |           |      |    |       |
|--------------|---|-----------|------|----|-------|
| 1-216-063-00 | s | RES, CHIP | 3.9K | 5% | 1/10W |
| 1-216-065-00 | s | RES, CHIP | 4.7K | 5% | 1/10W |
| 1-216-073-00 | s | RES, CHIP | 10K  | 5% | 1/10W |
| 1-216-075-00 | s | RES, CHIP | 12K  | 5% | 1/10W |
| 1-216-077-00 | s | RES, CHIP | 15K  | 5% | 1/10W |

|              |   |           |     |    |       |
|--------------|---|-----------|-----|----|-------|
| 1-216-079-00 | s | RES, CHIP | 18K | 5% | 1/10W |
| 1-216-081-00 | s | RES, CHIP | 22K | 5% | 1/10W |
| 1-216-083-00 | s | RES, CHIP | 27K | 5% | 1/10W |
| 1-216-085-00 | s | RES, CHIP | 33K | 5% | 1/10W |
| 1-216-089-91 | s | RES, CHIP | 47K | 5% | 1/10W |

|              |   |           |      |    |       |
|--------------|---|-----------|------|----|-------|
| 1-216-095-00 | s | RES, CHIP | 82K  | 5% | 1/10W |
| 1-216-097-00 | s | RES, CHIP | 100K | 5% | 1/10W |
| 1-216-103-91 | s | RES, CHIP | 180K | 5% | 1/10W |
| 1-216-113-00 | s | RES, CHIP | 470K | 5% | 1/10W |
| 1-216-121-00 | s | RES, CHIP | 1.0M | 5% | 1/10W |

|              |   |           |     |    |       |
|--------------|---|-----------|-----|----|-------|
| 1-216-308-00 | s | RES, CHIP | 4.7 | 5% | 1/10W |
|--------------|---|-----------|-----|----|-------|

## ADA-31 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description   |
|---------------------|--------------|--|
| 1pc                 | A-8275-317-A | o MOUNTED CIRCUIT BOARD, ADA-31<br>(This assembly includes the following parts.) |
| C1                  | 1-124-589-11 | s ELECT 47uF 20% 16V   |
| C13                 | 1-124-261-00 | s ELECT 10uF 20% 50V   |
| C14                 | 1-124-261-00 | s ELECT 10uF 20% 50V   |
| C20                 | 1-126-157-11 | s ELECT 10uF 20% 16V   |
| C21                 | 1-126-157-11 | s ELECT 10uF 20% 16V   |
| C24                 | 1-126-157-11 | s ELECT 10uF 20% 16V   |
| C25                 | 1-124-234-00 | s ELECT 22uF 20% 16V   |
| C101                | 1-164-085-11 | s CERAMIC 1000pF 10% 50V   |
| C102                | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V   |
| C103                | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V   |
| C105                | 1-164-085-11 | s CERAMIC 1000pF 10% 50V   |
| C118                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C121                | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V   |
| C123                | 1-126-163-11 | s ELECT 4.7uF 20% 50V  |
| C124                | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V  |
| C125                | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V  |
| C201                | 1-164-085-11 | s CERAMIC 1000pF 10% 50V   |
| C202                | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V   |
| C203                | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V   |
| C205                | 1-164-085-11 | s CERAMIC 1000pF 10% 50V   |
| C218                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C221                | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V   |
| C223                | 1-126-163-11 | s ELECT 4.7uF 20% 50V  |
| C224                | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V  |
| C225                | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V  |
| C309                | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V   |
| C310                | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V  |
| C312                | 1-164-085-11 | s CERAMIC 1000pF 10% 50V   |
| C409                | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V   |
| C410                | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V  |
| C412                | 1-164-085-11 | s CERAMIC 1000pF 10% 50V   |
| C501                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C503                | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V   |
| C504                | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V   |
| C505                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C507                | 1-126-163-11 | s ELECT 4.7uF 20% 50V  |
| C508                | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V  |
| C510                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C511                | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V  |
| C514                | 1-124-261-00 | s ELECT 10uF 20% 50V   |
| C515                | 1-126-157-11 | s ELECT 10uF 20% 16V   |
| C517                | 1-124-261-00 | s ELECT 10uF 20% 50V   |
| C519                | 1-124-261-00 | s ELECT 10uF 20% 50V   |
| C521                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C522                | 1-164-489-11 | s CERAMIC, CHIP 0.22uF 10% 16V   |
| C523                | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V  |
| C602                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C603                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C604                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C605                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C702                | 1-126-923-11 | s ELECT 220uF 20% 10V  |
| C802                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C804                | 1-124-589-11 | s ELECT 47uF 20% 16V   |
| C805                | 1-124-589-11 | s ELECT 47uF 20% 16V   |
| C807                | 1-126-096-11 | s ELECT 10uF 20% 35V   |
| C809                | 1-124-589-11 | s ELECT 47uF 20% 16V   |

## (ADA-31 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description          |
|---------------------|--------------|-------------------------|
| C810                | 1-124-589-11 | s ELECT 47uF 20% 16V    |
| C930                | 1-126-096-11 | s ELECT 10uF 20% 35V    |
| C931                | 1-126-096-11 | s ELECT 10uF 20% 35V    |
| CN1                 | 1-564-005-11 | o CONNECTOR 6P, MALE    |
| CN2                 | 1-506-480-11 | s CONNECTOR 15P, MALE   |
| CN3                 | 1-506-474-11 | s CONNECTOR 9P, MALE    |
| CN4                 | 1-506-469-11 | s CONNECTOR 4P, MALE    |
| CN5                 | 1-564-011-11 | o CONNECTOR 12P, MALE   |
| CP501               | 1-466-175-11 | s FILTER UNIT, LOW-PASS |
| D1                  | 8-719-028-74 | s DIODE NSQ03A04        |
| D2                  | 8-719-028-74 | s DIODE NSQ03A04        |
| D3                  | 8-719-028-74 | s DIODE NSQ03A04        |
| D4                  | 8-719-028-74 | s DIODE NSQ03A04        |
| D6                  | 8-719-941-23 | s DIODE DA204U          |
| D7                  | 8-719-941-23 | s DIODE DA204U          |
| D8                  | 8-719-210-33 | s DIODE EC10DS2         |
| D9                  | 8-719-941-23 | s DIODE DA204U          |
| D10                 | 8-719-941-23 | s DIODE DA204U          |
| D11                 | 8-719-941-23 | s DIODE DA204U          |
| D12                 | 8-719-941-23 | s DIODE DA204U          |
| D101                | 8-719-941-23 | s DIODE DA204U          |
| D102                | 8-719-941-23 | s DIODE DA204U          |
| D103                | 8-719-941-23 | s DIODE DA204U          |
| D104                | 8-719-941-23 | s DIODE DA204U          |
| D105                | 8-719-941-23 | s DIODE DA204U          |
| D106                | 8-719-941-23 | s DIODE DA204U          |
| D201                | 8-719-941-23 | s DIODE DA204U          |
| D202                | 8-719-941-23 | s DIODE DA204U          |
| D203                | 8-719-941-23 | s DIODE DA204U          |
| D204                | 8-719-941-23 | s DIODE DA204U          |
| D206                | 8-719-941-23 | s DIODE DA204U          |
| D207                | 8-719-941-23 | s DIODE DA204U          |
| D501                | 8-719-941-23 | s DIODE DA204U          |
| D502                | 8-719-941-23 | s DIODE DA204U          |
| D503                | 8-719-941-23 | s DIODE DA204U          |
| D504                | 8-719-941-23 | s DIODE DA204U          |
| D801                | 8-719-210-33 | s DIODE EC10DS2         |
| D901                | 8-719-210-33 | s DIODE EC10DS2         |
| D902                | 8-719-210-33 | s DIODE EC10DS2         |
| IC1                 | 8-759-999-09 | s IC CS5326-KP          |
| IC2                 | 8-759-701-84 | s IC NJM7905FA          |
| IC3                 | 8-759-701-75 | s IC NJM7805FA          |
| IC4                 | 8-759-701-59 | s IC NJM78M09FA         |
| IC5                 | 8-759-701-87 | s IC NJM7909FA          |
| IC9                 | 8-759-925-90 | s IC SN74HC74NS         |
| IC10                | 8-759-925-90 | s IC SN74HC74NS         |
| IC11                | 8-759-927-46 | s IC SN74HC00NS         |
| IC101               | 8-759-208-09 | s IC TC4052BFHB         |
| IC102               | 8-759-745-64 | s IC NJM4560M           |
| IC103               | 8-759-234-77 | s IC TC4S66F            |
| IC104               | 8-759-745-64 | s IC NJM4560M           |
| IC105               | 8-759-745-64 | s IC NJM4560M           |
| IC106               | 8-759-234-77 | s IC TC4S66F            |
| IC201               | 8-759-208-09 | s IC TC4052BFHB         |
| IC202               | 8-759-745-64 | s IC NJM4560M           |
| IC203               | 8-759-234-77 | s IC TC4S66F            |
| IC204               | 8-759-745-64 | s IC NJM4560M           |
| IC205               | 8-759-745-64 | s IC NJM4560M           |

NOTE: Please see pages 7-10 for the parts that are not listed in the parts list.

## (ADA-31 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description        |
|---------------------|--------------|-----------------------|
| IC206               | 8-759-234-77 | s IC TC4S66F          |
| IC301               | 8-759-998-22 | s IC PCM56P           |
| IC302               | 8-759-745-64 | s IC NJM4560M         |
| IC303               | 8-759-234-77 | s IC TC4S66F          |
| IC401               | 8-759-998-22 | s IC PCM56P           |
| IC402               | 8-759-745-64 | s IC NJM4560M         |
| IC403               | 8-759-234-77 | s IC TC4S66F          |
| IC501               | 8-759-700-45 | s IC NJM4556M-A       |
| IC502               | 8-759-745-64 | s IC NJM4560M         |
| IC503               | 8-759-701-02 | s IC NJM2073M         |
| IC701               | 8-759-973-71 | s IC TL7705CPS-B      |
| L4                  | 1-410-482-31 | s INDUCTOR 100uH      |
| L5                  | 1-410-482-31 | s INDUCTOR 100uH      |
| L6                  | 1-410-482-31 | s INDUCTOR 100uH      |
| L502                | 1-410-482-31 | s INDUCTOR 100uH      |
| L503                | 1-410-482-31 | s INDUCTOR 100uH      |
| L801                | 1-412-533-21 | s INDUCTOR 47UH       |
| L802                | 1-412-533-21 | s INDUCTOR 47UH       |
| Q4                  | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q501                | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q502                | 8-729-901-00 | s TRANSISTOR DTC124EK |
| Q503                | 8-729-140-98 | s TRANSISTOR 2SD773-3 |
| Q504                | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q505                | 8-729-901-00 | s TRANSISTOR DTC124EK |
| Q801                | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q802                | 8-729-901-00 | s TRANSISTOR DTC124EK |
| Q803                | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q804                | 8-729-901-00 | s TRANSISTOR DTC124EK |
| Q805                | 8-729-901-00 | s TRANSISTOR DTC124EK |
| Q806                | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q807                | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q808                | 8-729-901-00 | s TRANSISTOR DTC124EK |
| Q809                | 8-729-140-98 | s TRANSISTOR 2SD773-3 |
| RV101               | 1-241-631-11 | s RES, ADJ CARBON 22K |
| RV201               | 1-241-631-11 | s RES, ADJ CARBON 22K |
| RV301               | 1-241-630-11 | s RES, ADJ CARBON 10K |
| RV401               | 1-241-630-11 | s RES, ADJ CARBON 10K |
| RY501               | 1-515-716-11 | s RELAY               |
| RY502               | 1-515-716-11 | s RELAY               |
| RY801               | 1-515-716-11 | s RELAY               |

## CP-233A BOARD (For UC,EK)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-076-11 | o PRINTED CIRCUIT BOARD, CP-233 |
| C1                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C2                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C4                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C5                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| CN1                 | 1-564-005-11 | o CONNECTOR 6P, MALE            |
| CN2                 | 1-565-284-11 | o CONNECTOR, XLR 3P, FEMALE     |
| CN3                 | 1-565-284-11 | o CONNECTOR, XLR 3P, FEMALE     |
| CN4                 | 1-565-284-11 | o CONNECTOR, XLR 3P, FEMALE     |
| CN5                 | 1-564-002-11 | s CONNECTOR 3P, MALE            |
| FB1                 | 1-412-694-11 | s INDUCTOR, BEED                |
| FB2                 | 1-412-694-11 | s INDUCTOR, BEED                |
| FB11                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB12                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB13                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB14                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB15                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB16                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB21                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB22                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB23                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB24                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB25                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB26                | 1-412-694-11 | s INDUCTOR, BEED                |

NOTE: Please see pages 7-10 for the parts that are not listed in the parts list.



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**CP-233B BOARD (For J)**

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| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-076-11 | o PRINTED CIRCUIT BOARD, CP-233 |
| C1                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C2                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C4                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C5                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| CN1                 | 1-564-005-11 | o CONNECTOR 6P, MALE            |
| CN2                 | 1-565-283-11 | o CONNECTOR, XLR 3P, MALE       |
| CN3                 | 1-565-283-11 | o CONNECTOR, XLR 3P, MALE       |
| CN4                 | 1-565-284-11 | o CONNECTOR, XLR 3P, FEMALE     |
| CN5                 | 1-564-002-11 | s CONNECTOR 3P, MALE            |
| FB1                 | 1-412-694-11 | s INDUCTOR, BEED                |
| FB2                 | 1-412-694-11 | s INDUCTOR, BEED                |
| FB11                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB12                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB13                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB14                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB15                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB16                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB21                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB22                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB23                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB24                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB25                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB26                | 1-412-694-11 | s INDUCTOR, BEED                |

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**CP-234 BOARD**

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| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-077-11 | o PRINTED CIRCUIT BOARD, CP-234 |
| C1                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C2                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| CN1                 | 1-506-469-11 | s CONNECTOR 4P, MALE            |
| FB1                 | 1-412-694-11 | s INDUCTOR, BEED                |
| FB2                 | 1-412-694-11 | s INDUCTOR, BEED                |
| J1                  | 1-562-999-41 | s JACK, PIN 2P                  |

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**HP-57 BOARD**

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| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| 1pc                 | 1-650-075-11 | o PRINTED CIRCUIT BOARD, HP-57 |
| 1pc                 | 3-678-376-01 | o BRACKET, JACK                |
| 1pc                 | 7-682-903-01 | s SCREW +PWH 3X5               |
| FB1                 | 1-412-694-11 | s INDUCTOR, BEED               |
| FB2                 | 1-412-694-11 | s INDUCTOR, BEED               |
| FB3                 | 1-412-694-11 | s INDUCTOR, BEED               |
| FB4                 | 1-412-694-11 | s INDUCTOR, BEED               |
| J1                  | 1-569-190-11 | s JACK (LARGE TYPE)            |
| RV1                 | 1-241-331-11 | s RES, VAR CARBON 10K/10K      |

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**KY-247 BOARD**

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| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-074-11 | o PRINTED CIRCUIT BOARD, KY-247 |
| 1pc                 | 4-928-315-81 | s KEY TOP                       |
| S1                  | 1-571-655-21 | s SWITCH, PUSH(WITH LED)        |

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**LED-160 BOARD**

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| Ref. No.<br>or Q'ty | Part No.     | SP Description                   |
|---------------------|--------------|----------------------------------|
| 1pc                 | 1-650-080-11 | o PRINTED CIRCUIT BOARD, LED-160 |
| D1                  | 8-719-041-51 | s LED GL1EG111, YELLOWISH GREEN  |

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**REEL FG BOARD**

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| Ref. No.<br>or Q'ty | Part No.     | SP Description  |
|---------------------|--------------|---|
| 1pc                 | A-8276-769-A | o MOUNTED CIRCUIT BOARD, REEL FG<br>(This assembly includes the following parts.) |
| 1pc                 | 1-648-983-11 | o PRINTED CIRCUIT BOARD, REEL FG  |
| C1                  | 1-164-505-11 | s CERAMIC 2.2uF 16V   |

NOTE: Please see pages 7-10 for the parts that are not listed in the parts list.

## RF-53 BOARD

Ref. No.

or Q'ty Part No. SP Description

|      |              |                                  |
|------|--------------|----------------------------------|
| C102 | 1-164-845-11 | s CERAMIC 5PF 5% 16V             |
| C103 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C104 | 1-164-845-11 | s CERAMIC 5PF 5% 16V             |
| C105 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C107 | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C108 | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C111 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C112 | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V      |
| C113 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C114 | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V      |
| C115 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C116 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C117 | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C118 | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C119 | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C120 | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C121 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C122 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C123 | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C124 | 1-164-940-11 | s CERAMIC 0.0033uF 10% 16V       |
| C125 | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C126 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C128 | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C129 | 1-164-935-11 | s CERAMIC 470PF 10% 16V          |
| C130 | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C131 | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C132 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C134 | 1-162-968-11 | s CERAMIC, CHIP 0.0047uF 10% 50V |
| C136 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C137 | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C138 | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C139 | 1-162-964-11 | s CERAMIC, CHIP 0.001uF 10% 50V  |
| C202 | 1-164-845-11 | s CERAMIC 5PF 5% 16V             |
| C203 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C204 | 1-164-845-11 | s CERAMIC 5PF 5% 16V             |
| C205 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C207 | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C208 | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C211 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C212 | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V      |
| C213 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C214 | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V      |
| C215 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C216 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C217 | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C218 | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C219 | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C220 | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C221 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C222 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C223 | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C224 | 1-164-940-11 | s CERAMIC 0.0033uF 10% 16V       |
| C225 | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C226 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C228 | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C229 | 1-164-935-11 | s CERAMIC 470PF 10% 16V          |
| C230 | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C231 | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C232 | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |

## (RF-53 BOARD)

Ref. No.

or Q'ty Part No. SP Description

|       |              |                                  |
|-------|--------------|----------------------------------|
| C234  | 1-162-968-11 | s CERAMIC, CHIP 0.0047uF 10% 50V |
| C236  | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C237  | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C238  | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C239  | 1-162-964-11 | s CERAMIC, CHIP 0.001uF 10% 50V  |
| C301  | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C303  | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C304  | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C307  | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| CN1   | 1-566-531-11 | s CONNECTOR, FPC (ZIF) 15P       |
| CN2   | 1-565-882-11 | o CONNECTOR, 10P, MALE           |
| CN3   | 1-566-534-11 | s CONNECTOR, FPC (ZIF) 18P       |
| IC101 | 8-752-039-01 | s IC CXA1364R                    |
| IC201 | 8-752-039-01 | s IC CXA1364R                    |
| IC301 | 8-759-064-36 | s IC MB88346BPFV                 |
| L101  | 1-410-381-11 | s INDUCTOR CHIP 10UH             |
| L201  | 1-410-381-11 | s INDUCTOR CHIP 10UH             |
| L301  | 1-410-381-11 | s INDUCTOR CHIP 10UH             |
| Q101  | 8-729-102-08 | s TRANSISTOR 2SC2223-T1F14       |
| Q102  | 8-729-102-08 | s TRANSISTOR 2SC2223-T1F14       |
| Q103  | 8-729-901-00 | s TRANSISTOR DTC124EK            |
| Q104  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG          |
| Q105  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG          |
| Q106  | 8-729-216-21 | s TRANSISTOR 2SA1162-Y           |
| Q107  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG          |
| Q108  | 8-729-216-21 | s TRANSISTOR 2SA1162-Y           |
| Q109  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG          |
| Q110  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG          |
| Q201  | 8-729-102-08 | s TRANSISTOR 2SC2223-T1F14       |
| Q202  | 8-729-102-08 | s TRANSISTOR 2SC2223-T1F14       |
| Q203  | 8-729-901-00 | s TRANSISTOR DTC124EK            |
| Q204  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG          |
| Q205  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG          |
| Q206  | 8-729-216-21 | s TRANSISTOR 2SA1162-Y           |
| Q207  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG          |
| Q208  | 8-729-216-21 | s TRANSISTOR 2SA1162-Y           |
| Q209  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG          |
| Q210  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG          |
| R101  | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W       |
| R102  | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W        |
| R103  | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W        |
| R104  | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W       |
| R105  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W       |
| R106  | 1-216-812-11 | s METAL, CHIP 180 5% 1/16W       |
| R107  | 1-216-812-11 | s METAL, CHIP 180 5% 1/16W       |
| R108  | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W       |
| R109  | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W       |
| R110  | 1-218-973-11 | s METAL 27K 5% 1/16W             |
| R111  | 1-218-967-11 | s METAL 15K 5% 1/16W             |
| R112  | 1-218-967-11 | s METAL 15K 5% 1/16W             |
| R113  | 1-218-990-11 | s METAL 0 5% 1/16W               |
| R114  | 1-218-973-11 | s METAL 47K 5% 1/16W             |
| R115  | 1-218-990-11 | s METAL 0 5% 1/16W               |
| R116  | 1-218-967-11 | s METAL 15K 5% 1/16W             |
| R117  | 1-218-967-11 | s METAL 15K 5% 1/16W             |
| R118  | 1-218-952-11 | s METAL 820 5% 1/16W             |
| R119  | 1-218-961-11 | s METAL 4.7K 5% 1/16W            |
| R120  | 1-220-184-81 | s METAL 1.3K 5% 16W              |

NOTE: Please see pages 7-10 for the parts that are not listed in the parts list.

## (RF-53 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R121                | 1-218-961-11 | s METAL 4.7K 5% 1/16W       |
| R122                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R123                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R124                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R125                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R126                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R127                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R128                | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R129                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R130                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R131                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R132                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R133                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R134                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R135                | 1-216-791-11 | s METAL, CHIP 3.3 5% 1/16W  |
| R136                | 1-216-791-11 | s METAL, CHIP 3.3 5% 1/16W  |
| R137                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R138                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R139                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R140                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R201                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R202                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R203                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R204                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R205                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R206                | 1-216-812-11 | s METAL, CHIP 180 5% 1/16W  |
| R207                | 1-216-812-11 | s METAL, CHIP 180 5% 1/16W  |
| R208                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R209                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R210                | 1-218-973-11 | s METAL 47K 5% 1/16W        |
| R211                | 1-218-967-11 | s METAL 15K 5% 1/16W        |
| R212                | 1-218-967-11 | s METAL 15K 5% 1/16W        |
| R213                | 1-218-990-11 | s METAL 0 5% 1/16W          |
| R214                | 1-218-973-11 | s METAL 47K 5% 1/16W        |
| R215                | 1-218-990-11 | s METAL 0 5% 1/16W          |
| R216                | 1-218-967-11 | s METAL 15K 5% 1/16W        |
| R217                | 1-218-967-11 | s METAL 15K 5% 1/16W        |
| R218                | 1-218-952-11 | s METAL 820 5% 1/16W        |
| R219                | 1-218-961-11 | s METAL 4.7K 5% 1/16W       |
| R220                | 1-220-184-81 | s METAL 1.3K 5% 16W         |
| R221                | 1-218-961-11 | s METAL 4.7K 5% 1/16W       |
| R222                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R223                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R224                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R225                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R226                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R227                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R228                | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R229                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R230                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R231                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R232                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R233                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R234                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R235                | 1-216-791-11 | s METAL, CHIP 3.3 5% 1/16W  |
| R236                | 1-216-791-11 | s METAL, CHIP 3.3 5% 1/16W  |
| R237                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R238                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R239                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |

## (RF-53 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description             |
|---------------------|--------------|----------------------------|
| R240                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W  |
| R301                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W |
| R302                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W |
| R303                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W |

NOTE: Please see pages 7-10 for the parts that are not listed in the parts list.

## SSP-8 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description  |
|---------------------|--------------|---|
| 1pc                 | A-8275-316-A | o MOUNTED CIRCUIT BOARD, SSP-8<br>(This assembly includes the following parts.) |
| 1pc                 | 1-563-180-11 | o HOUSING, 6P   |
| 3pcs                | 4-924-029-11 | s WASHER  |
| BT101               | 1-528-229-11 | o BATTERY, LITHIUM CR-2450  |
| BZ101               | 1-529-025-00 | s BUZZER  |
| C102                | 1-136-165-00 | s FILM 0.1uF 5% 50V   |
| C104                | 1-126-157-11 | s ELECT 10uF 20% 16V  |
| C113                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C118                | 1-125-447-11 | s DOUBLE LAYERS 1FARAD 5.5V   |
| C119                | 1-125-447-11 | s DOUBLE LAYERS 1FARAD 5.5V   |
| C136                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C137                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C139                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C140                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C156                | 1-126-157-11 | s ELECT 10uF 20% 16V  |
| C162                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C164                | 1-126-940-11 | s ELECT 330uF 20% 16V   |
| C175                | 1-164-081-11 | s CERAMIC 470pF 10% 50V   |
| C176                | 1-164-081-11 | s CERAMIC 470pF 10% 50V   |
| C177                | 1-164-081-11 | s CERAMIC 470pF 10% 50V   |
| C178                | 1-164-081-11 | s CERAMIC 470pF 10% 50V   |
| C179                | 1-164-081-11 | s CERAMIC 470pF 10% 50V   |
| C180                | 1-164-081-11 | s CERAMIC 470pF 10% 50V   |
| C181                | 1-164-081-11 | s CERAMIC 470pF 10% 50V   |
| C182                | 1-164-081-11 | s CERAMIC 470pF 10% 50V   |
| C183                | 1-164-081-11 | s CERAMIC 470pF 10% 50V   |
| C184                | 1-164-081-11 | s CERAMIC 470pF 10% 50V   |
| C185                | 1-164-081-11 | s CERAMIC 470pF 10% 50V   |
| C305                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C323                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C505                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C526                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C701                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C702                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C703                | 1-126-940-11 | s ELECT 330uF 20% 16V   |
| C704                | 1-126-940-11 | s ELECT 330uF 20% 16V   |
| C705                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C706                | 1-126-157-11 | s ELECT 10uF 20% 16V  |
| C707                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C708                | 1-136-169-00 | s MYLAR 0.22uF 5% 50V   |
| C709                | 1-136-169-00 | s MYLAR 0.22uF 5% 50V   |
| C713                | 1-136-177-00 | s FILM 1uF 5% 50V   |
| C714                | 1-126-157-11 | s ELECT 10uF 20% 16V  |
| C715                | 1-164-346-11 | s CERAMIC 1uF 16V   |
| C721                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C724                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C728                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C733                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C736                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C738                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C742                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C746                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C751                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C765                | 1-164-096-11 | s CERAMIC 0.01uF 50V  |
| C766                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |

## (SSP-8 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description            |
|---------------------|--------------|---------------------------|
| C767                | 1-162-806-11 | s CERAMIC 0.1uF 10% 50V   |
| C768                | 1-162-806-11 | s CERAMIC 0.1uF 10% 50V   |
| C769                | 1-162-806-11 | s CERAMIC 0.1uF 10% 50V   |
| C770                | 1-162-806-11 | s CERAMIC 0.1uF 10% 50V   |
| C902                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C904                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C908                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C910                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C912                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C914                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C916                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C918                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C922                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C924                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C926                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C928                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| CN102               | 1-506-472-11 | s CONNECTOR 7P, MALE      |
| CN103               | 1-506-683-11 | s CONNECTOR, PS 16P, MALE |
| CN104               | 1-564-001-11 | o CONNECTOR 2P, MALE      |
| CN302               | 1-506-480-11 | s CONNECTOR 15P, MALE     |
| CN701               | 1-508-797-00 | o PIN, CONNECTOR 4P       |
| CN702               | 1-508-797-00 | o PIN, CONNECTOR 4P       |
| CN703               | 1-508-797-00 | o PIN, CONNECTOR 4P       |
| CN706               | 1-506-468-11 | s CONNECTOR 3P, MALE      |
| CN709               | 1-506-474-11 | s CONNECTOR 9P, MALE      |
| CN712               | 1-506-480-11 | s CONNECTOR 15P, MALE     |
| CNI103              | 1-540-080-11 | s SOCKET, IC (IC113) 68P  |
| CNI112              | 1-251-103-11 | o SOCKET, IC 40PY         |
| CNI301              | 1-540-080-11 | s SOCKET, IC (IC113) 68P  |
| CNI307              | 1-251-103-11 | o SOCKET, IC 40PY         |
| CNI501              | 1-540-080-11 | s SOCKET, IC (IC113) 68P  |
| CNI509              | 1-251-103-11 | o SOCKET, IC 40PY         |
| CP101               | 1-577-171-11 | s CRYSTAL 16.00MHz        |
| CP102               | 1-415-502-11 | s DELAY LINE 100ns        |
| CP701               | 1-760-149-21 | s CRYSTAL 49.1520MHz      |
| CP702               | 1-760-148-21 | s CRYSTAL 37.6320MHz      |
| D101                | 8-719-028-74 | s DIODE NSQ03A04          |
| D102                | 8-719-028-74 | s DIODE NSQ03A04          |
| D103                | 8-719-028-74 | s DIODE NSQ03A04          |
| D104                | 8-719-028-74 | s DIODE NSQ03A04          |
| D105                | 8-719-028-74 | s DIODE NSQ03A04          |
| D106                | 8-719-989-22 | s LED CL-150R-CD, RED     |
| D107                | 8-719-989-22 | s LED CL-150R-CD, RED     |
| D108                | 8-719-987-41 | s LED CL-150Y-CD, AMBER   |
| D109                | 8-719-987-43 | s LED CL-150PG-CD, GRN    |
| D701                | 8-719-911-19 | s DIODE 1SS119            |
| D702                | 8-719-911-19 | s DIODE 1SS119            |
| D703                | 8-719-911-19 | s DIODE 1SS119            |
| D704                | 8-719-911-19 | s DIODE 1SS119            |
| D705                | 8-719-911-19 | s DIODE 1SS119            |
| D706                | 8-719-911-19 | s DIODE 1SS119            |
| FB701               | 1-412-694-11 | s INDUCTOR BEED           |
| IC101               | 8-759-925-74 | s IC TC74HC04NS           |
| IC102               | 8-759-973-71 | s IC TL7705CPS-B          |
| IC103               | 8-759-151-34 | s IC UPD70216L-10         |
| IC104               | 8-759-170-54 | s IC CXD8830Q             |
| IC105               | 8-759-929-77 | s IC SN74LS03NS           |

NOTE: Please see pages 7-10 for the parts that are not listed in the parts list.

## (SSP-8 BOARD)

| Ref. No.<br>or Q'ty | Part No.       | SP Description         |
|---------------------|----------------|------------------------|
| IC106               | 8-752-338-23 s | IC CXK581100TM-10LL    |
| IC107               | 8-752-338-23 s | IC CXK581100TM-10LL    |
| IC108               | 8-759-171-48 s | IC CXD8326Q            |
| IC109               | 8-759-927-46 s | IC SN74HC00NS          |
| IC110               | 8-759-973-43 s | IC MB8421-90LPFQ       |
| IC111               | 8-759-510-88 s | IC MB8431-90LPFQ       |
| IC114               | 8-759-926-06 s | IC SN74HC126NS         |
| IC115               | 8-759-174-34 s | IC ST93CS56M1013TR     |
| IC116               | 8-759-164-72 s | IC UPD71101GD-10-5BB   |
| IC117               | 8-759-922-44 s | IC MSM5832RS           |
| IC118               | 8-759-925-76 s | IC SN74HC08NS          |
| IC119               | 8-759-925-90 s | IC SN74HC74NS          |
| IC120               | 8-759-925-80 s | IC SN74HC14NS          |
| IC121               | 8-759-166-98 s | IC LT1134CS-E1         |
| IC122               | 8-759-926-82 s | IC SN74HC574ANS        |
| IC123               | 8-759-926-82 s | IC SN74HC574ANS        |
| IC124               | 8-759-925-85 s | IC SN74HC32NS          |
| IC125               | 8-759-171-49 s | IC UPD72020GC-8-3B6    |
| IC126               | 8-759-939-28 s | IC CXD1102Q            |
| IC127               | 8-752-337-91 s | IC CXK58257ATM-70LL    |
| IC128               | 8-752-337-91 s | IC CXK58257ATM-70LL    |
| IC129               | 8-759-251-49 o | IC PALCE16V8Q-25JC-VIF |
| IC131               | 8-759-149-10 s | IC UPD4702G            |
| IC132               | 8-759-948-58 s | IC 74F244SJ            |
| IC133               | 8-759-500-05 s | IC MSM6338MS-K         |
| IC134               | 8-759-926-77 s | IC SN74HC541NS         |
| IC135               | 8-759-149-10 s | IC UPD4702G            |
| IC136               | 8-759-149-10 s | IC UPD4702G            |
| IC301               | 8-759-151-34 s | IC UPD70216L-10        |
| IC302               | 8-759-170-54 s | IC CXD8830Q            |
| IC303               | 8-759-926-12 s | IC SN74HC139NS         |
| IC304               | 8-759-925-74 s | IC TC74HC04NS          |
| IC305               | 8-752-337-91 s | IC CXK58257ATM-70LL    |
| IC306               | 8-752-337-91 s | IC CXK58257ATM-70LL    |
| IC308               | 8-759-925-72 s | IC SN74HC02NS          |
| IC309               | 8-759-926-06 s | IC SN74HC126NS         |
| IC310               | 8-759-149-09 s | IC UPD71059GB-10-3B4   |
| IC311               | 8-759-149-07 s | IC UPD71054GB-10-3B4   |
| IC312               | 8-759-925-85 s | IC SN74HC32NS          |
| IC313               | 8-759-154-60 s | IC UPD71055GB-10-3B4   |
| IC314               | 8-759-926-82 s | IC SN74HC574ANS        |
| IC316               | 8-759-051-53 s | IC TD62381F            |
| IC317               | 8-759-170-56 s | IC CXD8828Q            |
| IC318               | 8-759-926-52 s | IC SN74HC257NS         |
| IC319               | 8-759-925-90 s | IC SN74HC74NS          |
| IC501               | 8-759-151-34 s | IC UPD70216L-10        |
| IC502               | 8-759-170-54 s | IC CXD8830Q            |
| IC503               | 8-759-925-82 s | IC SN74HC21NS          |
| IC504               | 8-759-925-74 s | IC TC74HC04NS          |
| IC505               | 8-759-973-43 s | IC MB8421-90LPFQ       |
| IC506               | 8-759-510-88 s | IC MB8431-90LPFQ       |
| IC507               | 8-752-337-91 s | IC CXK58257ATM-70LL    |
| IC508               | 8-752-337-91 s | IC CXK58257ATM-70LL    |
| IC510               | 8-759-925-72 s | IC SN74HC02NS          |
| IC511               | 8-759-926-06 s | IC SN74HC126NS         |
| IC512               | 8-759-149-09 s | IC UPD71059GB-10-3B4   |
| IC513               | 8-759-925-85 s | IC SN74HC32NS          |
| IC514               | 8-759-149-07 s | IC UPD71054GB-10-3B4   |
| IC515               | 8-759-926-82 s | IC SN74HC574ANS        |

## (SSP-8 BOARD)

| Ref. No.<br>or Q'ty | Part No.       | SP Description      |
|---------------------|----------------|---------------------|
| IC517               | 8-759-170-56 s | IC CXD8828Q         |
| IC701               | 8-759-708-05 s | IC NJM78L05A        |
| IC702               | 8-752-306-51 s | IC CX23065A         |
| IC703               | 8-759-923-65 s | IC AM26LS31CNS      |
| IC704               | 8-759-923-64 s | IC AM26LS32ACNS     |
| IC705               | 8-759-925-74 s | IC TC74HC04NS       |
| IC706               | 8-759-931-43 s | IC SN74LS624NS      |
| IC707               | 8-752-337-91 s | IC CXK58257ATM-70LL |
| IC708               | 8-752-352-24 s | IC CXD2605R         |
| IC709               | 8-759-243-19 s | IC TC7SU04F         |
| IC710               | 8-759-926-77 s | IC SN74HC541NS      |
| IC711               | 8-752-337-91 s | IC CXK58257ATM-70LL |
| IC712               | 8-752-352-24 s | IC CXD2605R         |
| IC713               | 8-759-243-19 s | IC TC7SU04F         |
| IC714               | 8-752-337-91 s | IC CXK58257ATM-70LL |
| IC715               | 8-752-352-24 s | IC CXD2605R         |
| IC716               | 8-759-243-19 s | IC TC7SU04F         |
| IC717               | 8-759-925-76 s | IC SN74HC08NS       |
| IC718               | 8-759-925-74 s | IC TC74HC04NS       |
| IC719               | 8-759-170-55 s | IC CXD8829Q         |
| IC720               | 8-759-925-90 s | IC SN74HC74NS       |
| IC721               | 8-759-925-90 s | IC SN74HC74NS       |
| IC722               | 8-759-925-90 s | IC SN74HC74NS       |
| IC723               | 8-759-926-24 s | IC SN74HC164NS      |
| IC724               | 8-759-926-24 s | IC SN74HC164NS      |
| IC725               | 8-759-926-24 s | IC SN74HC164NS      |
| IC726               | 8-759-926-24 s | IC SN74HC164NS      |
| IC727               | 8-759-926-24 s | IC SN74HC164NS      |
| IC728               | 8-759-926-26 s | IC SN74HC166NS      |
| IC729               | 8-759-926-26 s | IC SN74HC166NS      |
| IC730               | 8-759-926-26 s | IC SN74HC166NS      |
| IC731               | 8-759-926-26 s | IC SN74HC166NS      |
| IC732               | 8-759-038-46 s | IC TC7S00F-TE85L    |
| IC733               | 8-759-038-46 s | IC TC7S00F-TE85L    |
| IC734               | 8-759-038-46 s | IC TC7S00F-TE85L    |
| IC901               | 8-759-254-77 s | IC CXD8864Q         |
| IC902               | 8-759-043-71 s | IC TMS44400-80SD    |
| IC903               | 8-759-043-71 s | IC TMS44400-80SD    |
| IC904               | 8-759-043-71 s | IC TMS44400-80SD    |
| IC905               | 8-759-043-71 s | IC TMS44400-80SD    |
| IC906               | 8-759-254-77 s | IC CXD8864Q         |
| IC907               | 8-759-043-71 s | IC TMS44400-80SD    |
| IC908               | 8-759-043-71 s | IC TMS44400-80SD    |
| IC909               | 8-759-043-71 s | IC TMS44400-80SD    |
| IC910               | 8-759-043-71 s | IC TMS44400-80SD    |
| IC911               | 8-752-343-18 s | IC CXD2704Q         |
| IC912               | 8-752-343-18 s | IC CXD2704Q         |
| IC913               | 8-752-343-18 s | IC CXD2704Q         |
| L701                | 1-410-482-31 s | INDUCTOR 100uH      |
| L702                | 1-410-482-31 s | INDUCTOR 100uH      |
| L703                | 1-410-482-31 s | INDUCTOR 100uH      |
| L704                | 1-410-482-31 s | INDUCTOR 100uH      |
| L705                | 1-412-533-21 s | INDUCTOR 47uF       |
| ND301               | 8-719-951-37 s | LED LA-301VB, RED   |
| ND501               | 8-719-951-37 s | LED LA-301VB, RED   |
| S102                | 1-692-535-11 s | SWITCH, DIP 8-CKT   |
| T701                | 1-437-194-21 s | TRANSFORMER, PULSE  |

NOTE: Please see pages 7-10 for the parts that are not listed in the parts list.

## (SSP-8 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description        |
|---------------------|--------------|-----------------------|
| X101                | 1-567-862-11 | s CRYSTAL, 4.9152MHZ  |
| X102                | 1-577-110-11 | s CRYSTAL 20MHZ       |
| X103                | 1-567-098-00 | s CRYSTAL 32.76800MHZ |
| X301                | 1-577-110-11 | s CRYSTAL 20MHZ       |
| X501                | 1-577-110-11 | s CRYSTAL 20MHZ       |
| X701                | 1-567-815-11 | s CRYSTAL 22.5792MHZ  |

## SV-147 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description   |
|---------------------|--------------|--|
| 1pc                 | A-8310-133-A | o MOUNTED CIRCUIT BOARD, SV-147<br>(This assembly includes the following parts.) |
| 4pcs                | 3-374-740-01 | s BRACKET, LED   |
| C1                  | 1-164-489-11 | s CERAMIC, CHIP 0.22uF 10% 16V   |
| C5                  | 1-162-969-11 | s CERAMIC, CHIP 0.0068uF 10% 25V   |
| C7                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V   |
| C8                  | 1-164-227-11 | s CERAMIC, CHIP 0.022uF 10% 25V  |
| C9                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V   |
| C10                 | 1-162-965-11 | s CERAMIC, CHIP 0.0015uF 10% 50V   |
| C11                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C13                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C14                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C15                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C20                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C21                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C22                 | 1-162-965-11 | s CERAMIC, CHIP 0.0015uF 10% 50V   |
| C23                 | 1-162-965-11 | s CERAMIC, CHIP 0.0015uF 10% 50V   |
| C24                 | 1-164-227-11 | s CERAMIC, CHIP 0.022uF 10% 25V  |
| C25                 | 1-164-227-11 | s CERAMIC, CHIP 0.022uF 10% 25V  |
| C26                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C27                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V   |
| C28                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C29                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V   |
| C30                 | 1-162-916-11 | s CERAMIC, CHIP 12PF 5% 50V  |
| C31                 | 1-162-916-11 | s CERAMIC, CHIP 12PF 5% 50V  |
| C32                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V   |
| C33                 | 1-162-964-11 | s CERAMIC, CHIP 0.001uF 10% 50V  |
| C34                 | 1-162-966-11 | s CERAMIC, CHIP 0.0022uF 10% 50V   |
| C35                 | 1-164-227-11 | s CERAMIC, CHIP 0.022uF 10% 25V  |
| C36                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C38                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C39                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C40                 | 1-128-397-21 | s ELECT 100uF 20% 16V  |
| C41                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C42                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C43                 | 1-128-397-21 | s ELECT 100uF 20% 16V  |
| C44                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C45                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C47                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C48                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C49                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C52                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C53                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C54                 | 1-128-397-21 | s ELECT 100uF 20% 16V  |
| C55                 | 1-128-397-21 | s ELECT 100uF 20% 16V  |
| C56                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C57                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C58                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C59                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C60                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C61                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C62                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C63                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C64                 | 1-162-968-11 | s CERAMIC, CHIP 0.0047uF 10% 50V   |
| CN1                 | 1-691-419-11 | o HOUSING, 8P  |
| CN2                 | 1-566-532-11 | s CONNECTOR, FPC 16P   |
| CN3                 | 1-566-195-11 | o CONNECTOR, PIN 2P, MALE  |

NOTE: Please see pages 7-10 for the parts that are not listed in the parts list.

## (SV-147 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description             |
|---------------------|--------------|----------------------------|
| CN4                 | 1-566-526-11 | s CONNECTOR, 10P           |
| CN5                 | 1-566-524-11 | s CONNECTOR, FPC (ZIF) 8P  |
| CN6                 | 1-569-529-11 | o HOUSING, 14P             |
| CN7                 | 1-506-479-11 | s CONNECTOR 14P, MALE      |
| CN8                 | 1-566-534-11 | s CONNECTOR, FPC (ZIF) 18P |
| CN10                | 1-566-526-11 | s CONNECTOR, 10P           |
| CN11                | 1-506-485-11 | s CONNECTOR 6P, MALE       |
| D1                  | 8-719-016-38 | s LED LN1351C6, GRN        |
| D2                  | 8-719-016-38 | s LED LN1351C6, GRN        |
| D3                  | 8-719-016-38 | s LED LN1351C6, GRN        |
| D4                  | 8-719-980-38 | s DIODE SB07-03C           |
| D5                  | 8-719-980-38 | s DIODE SB07-03C           |
| D6                  | 8-719-037-59 | s LED LN210RP, RED         |
| D7                  | 8-719-037-60 | s LED LN410YP, YEL         |
| D8                  | 8-719-018-39 | s LED LN310GP, GRN         |
| D9                  | 8-719-037-60 | s LED LN410YP, YEL         |
| D10                 | 8-719-400-18 | s DIODE MA152WK            |
| D11                 | 8-719-400-18 | s DIODE MA152WK            |
| D12                 | 8-719-400-18 | s DIODE MA152WK            |
| D13                 | 8-719-400-18 | s DIODE MA152WK            |
| D14                 | 8-719-980-38 | s DIODE SB07-03C           |
| D15                 | 8-719-980-38 | s DIODE SB07-03C           |
| D16                 | 8-719-400-18 | s DIODE MA152WK            |
| IC1                 | 8-759-929-26 | s IC TL431CPS              |
| IC2                 | 8-752-039-31 | s IC CXA1418N              |
| IC3                 | 8-752-038-71 | s IC CXA1127AM             |
| IC4                 | 8-759-100-94 | s IC UPC358G2              |
| IC5                 | 8-759-925-90 | s IC SN74HC74NS            |
| IC6                 | 8-759-925-90 | s IC SN74HC74NS            |
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| IC10                | 8-759-998-49 | s IC MB3771PF              |
| IC11                | 8-759-245-52 | s IC TA7291F               |
| IC12                | 8-759-551-68 | s IC M6M80021FP            |
| IC13                | 8-759-300-71 | s IC HD14053BFP            |
| IC14                | 8-759-926-06 | s IC SN74HC126NS           |
| IC15                | 8-759-823-87 | s IC LB1638M               |
| IC16                | 8-759-100-94 | s IC UPC358G2              |
| IC17                | 8-759-150-61 | s IC UPC78L05T             |
| IC18                | 8-759-150-61 | s IC UPC78L05T             |
| L1                  | 1-410-381-11 | s INDUCTOR CHIP 100H       |
| L2                  | 1-410-381-11 | s INDUCTOR CHIP 100H       |
| Q1                  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG    |
| Q2                  | 8-729-140-75 | s TRANSISTOR 2SD999        |
| Q3                  | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q4                  | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q5                  | 8-729-140-75 | s TRANSISTOR 2SD999        |
| Q6                  | 8-729-140-75 | s TRANSISTOR 2SD999        |
| Q7                  | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q8                  | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q9                  | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q10                 | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q11                 | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q12                 | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q13                 | 8-729-230-49 | s TRANSISTOR 2SC2712-YG    |
| Q14                 | 8-729-017-58 | s TRANSISTOR 2SB1323       |

## (SV-147 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| Q15                 | 8-729-140-75 | s TRANSISTOR 2SD999            |
| Q16                 | 8-729-901-00 | s TRANSISTOR DTC124EK          |
| Q17                 | 8-729-901-00 | s TRANSISTOR DTC124EK          |
| Q18                 | 8-729-901-00 | s TRANSISTOR DTC124EK          |
| R1                  | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R2                  | 1-218-736-11 | s METAL 68K 0.50% 1/16W        |
| R3                  | 1-218-736-11 | s METAL 68K 0.50% 1/16W        |
| R4                  | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R5                  | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R6                  | 1-216-853-11 | s METAL, CHIP 470K 5% 1/16W    |
| R7                  | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R8                  | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R9                  | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R10                 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W    |
| R11                 | 1-218-698-11 | s METAL, CHIP 1.8K 0.50% 1/16W |
| R12                 | 1-218-845-11 | s METAL 820 0.50% 1/16W        |
| R13                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R14                 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W    |
| R15                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R16                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R17                 | 1-216-793-11 | s METAL, CHIP 4.7 5% 1/16W     |
| R18                 | 1-216-793-11 | s METAL, CHIP 4.7 5% 1/16W     |
| R19                 | 1-216-793-11 | s METAL, CHIP 4.7 5% 1/16W     |
| R20                 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W    |
| R21                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R22                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R23                 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W    |
| R24                 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W    |
| R25                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R26                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R27                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R28                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R29                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R30                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R31                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R32                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R33                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R34                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R35                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W      |
| R36                 | 1-218-313-11 | s METAL, CHIP 560 1% 1/16W     |
| R37                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R38                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R39                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R40                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R41                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R42                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R43                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R44                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R45                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R46                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R47                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R48                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R49                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R50                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R51                 | 1-218-736-11 | s METAL 68K 0.50% 1/16W        |
| R52                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R53                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R54                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R55                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |

NOTE: Please see pages 7-10 for the parts that are not listed in the parts list.

(SV-147 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| R56                 | 1-218-706-11 | s METAL, CHIP 3.9K 0.50% 1/16W |
| R57                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R58                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R59                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R60                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R61                 | 1-218-736-11 | s METAL 68K 0.50% 1/16W        |
| R62                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R63                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R64                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R65                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R66                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R67                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R68                 | 1-218-698-11 | s METAL, CHIP 1.8K 0.50% 1/16W |
| R69                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R70                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R71                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R72                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R73                 | 1-218-744-11 | s METAL 150K 0.50% 1/16W       |
| R74                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R75                 | 1-218-867-11 | s METAL 6.8K 0.50% 1/16W       |
| R76                 | 1-218-867-11 | s METAL 6.8K 0.50% 1/16W       |
| R77                 | 1-218-724-11 | s METAL 22K 0.50% 1/16W        |
| R78                 | 1-218-724-11 | s METAL 22K 0.50% 1/16W        |
| R79                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R80                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R81                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R82                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R83                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R84                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R85                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R86                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R87                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R88                 | 1-215-907-11 | s METAL 22 5% 3W               |
| R89                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R90                 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W     |
| S1                  | 1-570-598-11 | s SWITCH, DIP 4-CKT            |
| X1                  | 1-579-962-21 | s CRYSTAL 22.5792MHZ           |

TENREGI BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                   |
|---------------------|--------------|----------------------------------|
| 1pc                 | 1-648-982-11 | o PRINTED CIRCUIT BOARD, TENREGI |
| D1                  | 8-719-821-03 | s ELEMENT, HALL THS117           |

VR-154 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-078-11 | o PRINTED CIRCUIT BOARD, VR-154 |
| S1                  | 1-467-523-11 | s ENCODER, ROTARY               |

VR-181 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-079-11 | o PRINTED CIRCUIT BOARD, VR-181 |
| S1                  | 1-467-523-11 | s ENCODER, ROTARY               |

NOTE: Please see pages 7-10 for the parts that are not listed in the parts list.



#### FRAME

Ref. No.

or Q'ty Part No. SP Description

|      |               |                                |
|------|---------------|--------------------------------|
| 1pc  | △1-251-148-11 | s INLET, AC (3P)               |
| 1pc  | △1-413-647-11 | s SWITCHING REGULATOR          |
| 1pc  | 1-466-954-11  | s DISPLAY UNIT, EL             |
| 1pc  | 1-466-955-11  | s ENCODER, ROTARY              |
| 1pc  | 1-467-524-11  | o KEY BOARD UNIT               |
| 4pcs | 1-500-082-11  | s FILTER, CLAMP (FERRITE CORE) |
| 1pc  | 1-532-827-11  | s FUSE (MT4-3A-N1)             |
| 1pc  | 1-543-793-11  | s FILTER, CLAMP (FERRITE CORE) |
| 1pc  | 1-544-578-11  | s SPEAKER                      |
| 2pcs | △1-560-764-21 | o CONTACT, FEMALE AWG18-24     |
| 1pc  | △1-562-817-11 | o HOUSING, CONNECTOR 2P        |
| 2pcs | △1-565-787-21 | o CONTACT, RECEPTACLE 1P       |
| 1pc  | 1-570-028-11  | s SWITCH, MICRO                |
| 1pc  | △1-570-455-11 | s SWITCH, AC POWER SEESAW      |
| 1pc  | 1-698-239-11  | s MOTOR, DC FAN                |
| 1pc  | 1-952-582-11  | o HARNESS, SUB (EL)            |

#### 7-4. ACCESSORIES SUPPLIED

Ref. No.

or Q'ty Part No. SP Description

|     |               |                            |
|-----|---------------|----------------------------|
| 1pc | △1-534-754-00 | s CORD, POWER (For J)      |
| 1pc | △1-551-812-11 | s CORD, POWER (For UC)     |
| 1pc | △1-590-910-11 | s CORD, SET POWER (For EK) |

NOTE: Please see pages 7-10 for the parts that are not listed in the parts list.

# SONY®

## DAT DUAL DECK EDITOR

# PCM-E7700

## SUPPLEMENT-1

対象マニュアル:

**APPLICABLE MANUAL:**

PCM-E7700 (J)(UC)(EK) OPERATION AND MAINTENANCE MANUAL

1st Edition (9-976-774-01)

対象シリアルナンバー:

**APPLICABLE Serial No.:**

PCM-E7700 (J) : 10001 以降

PCM-E7700 (UC): 20001 以降

PCM-E7700 (EK): 50001 以降

内容:

**SUBJECT:**

目次: 差し替え

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この追加版-1を、お持ちのOPERATION AND MAINTENANCE MANUALに追加および差し替えて御使用ください。

Please replace and add this SUPPLEMENT-1 manual to your own OPERATION AND MAINTENANCE MANUAL.

## OPERATION AND MAINTENANCE MANUAL Part 2

PCM-E7700 (J)

PCM-E7700 (UC)

PCM-E7700 (EK, 和, 英)

9-976-774-81

### Sony Corporation

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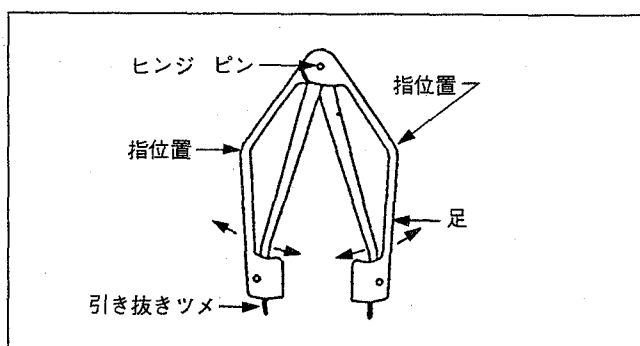
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| 7-4. ACCESSORIES SUPPLIED .....     | 7-21 |

### 1-4-3. PLCC ICの取り外し方法

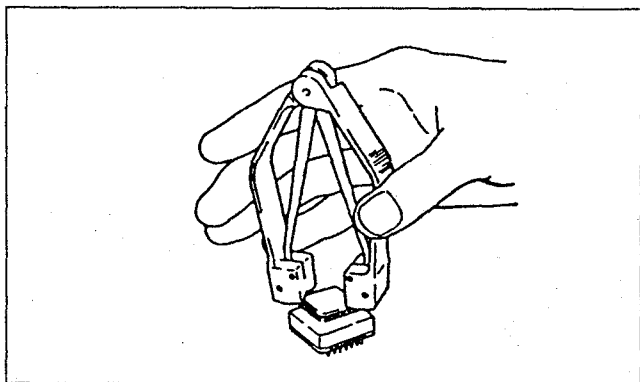
ICソケットに差し込まれたPLCCタイプのICを取り外す場合は、下記の工具を使用することを推奨します。20～124ピンまでのピン数のICに利用できます。

PLCCソケット用引き抜き工具  
ソニー部品番号J-6035-070-A

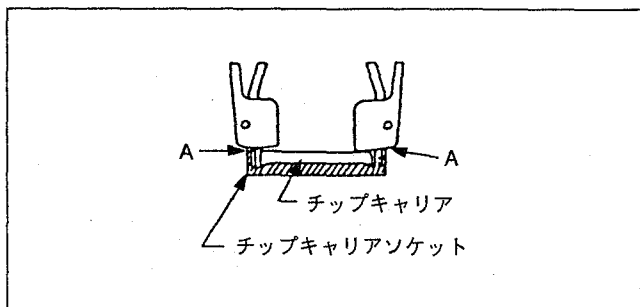


注意：・引き抜き工具でICチップを上方に引っ張らないこと。  
・必要以上の力で工具をはさみ込まないこと。

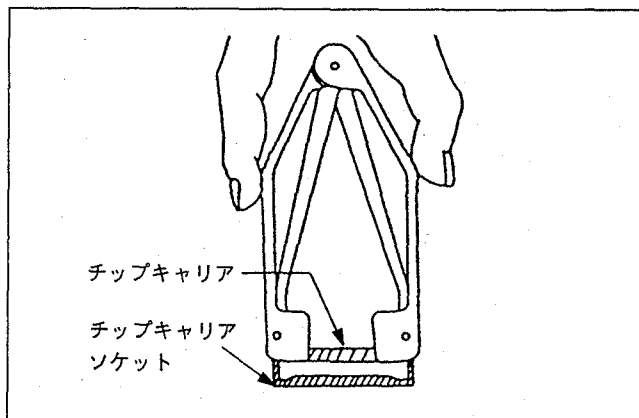
1. 工具の足をソケットのスロットの長さに合わせます。



2. 工具の先端の引き抜きツメをICソケットのスロットに差し込み、引き抜き工具の図に示すAの部分がソケットにあたるまで押し込みます。



3. 図のように引き抜き工具のリブの部分を持ちます。ソケットには下方向に小さな力がかかります。



4. 引き抜き工具をはさみ込みます。これにより、工具の足が伸びると同時に、工具の先端のツメがICチップをつかみ、上方向に引き抜きます。  
5. 引き抜いた後、力をゆるめ、ICチップを引き抜き工具から外します。

## 1-5. サービスメニュー

### サービスメニュー項目一覧

#### サービスメニュー

- 1. PLAYER MECHANICAL DECK ADJUSTMENT
  - 1. SERVO DATA PRESET(サーボデータプリセット)
  - 2. PLUNGER CHECK(プランジャーテスト)
  - 3. MECHANICAL DEVICE TEST(デバイステスト)
  - 4. RECOGNITION SWITCH CHECK(カセットホールスイッチテスト)
  - 5. END SENSOR LEVEL CHECK(HIGH)(エンドセンサーレベル確認-1)
  - 6. END SENSOR LEVEL CHECK(LOW)(エンドセンサーレベル確認-2)
  - 7. DEW SENSOR CHECK(結露センサーレベル確認)
  - 8. REEL TORQUE CHECK(リールトルク確認)
  - 9. FWD/RVS TORQUE ADJUSTMENT(FWD/REVトルク調整)
  - 10. DRUM/CAPSTAN SPEED & WOW CHECK (キャプスタンスピード、ワウフラッター確認)
  - 11. TAPE PATH ADJUSTMENT(テープパス調整)
  - 12. SWP POSITION ADJUSTMENT(SWP位置調整)
  - 13. PATH & FF/REW TIME CHECK(テープパス、FF/REW時間確認)
  - 14. PB ERROR RATE CHECK(再生エラーレート確認)
  - 15. -----
  - 16. -----
  - 17. -----
  - 18. SERVO DATA SAVE(サーボデータ保存)
  - 19. SERVO DATA DISPLAY(サーボデータ表示)
- 2. RECORDER MECHANICAL DECK ADJUSTMENT
  - 1. SERVO DATA PRESET(サーボデータプリセット)
  - 2. PLUNGER CHECK(プランジャーテスト)
  - 3. MECHANICAL DEVICE TEST(デバイステスト)
  - 4. RECOGNITION SWITCH CHECK(カセットホールスイッチテスト)
  - 5. END SENSOR LEVEL CHECK(HIGH)(エンドセンサーレベル確認-1)
  - 6. END SENSOR LEVEL CHECK(LOW)(エンドセンサーレベル確認-2)
  - 7. DEW SENSOR CHECK(結露センサーレベル確認)
  - 8. REEL TORQUE CHECK(リールトルク確認)
  - 9. FWD/RVS TORQUE ADJUSTMENT(FWD/REVトルク調整)
  - 10. DRUM/CAPSTAN SPEED & WOW CHECK (キャプスタンスピード、ワウフラッター確認)
  - 11. TAPE PATH ADJUSTMENT(テープパス調整)
  - 12. SWP POSITION ADJUSTMENT(SWP位置調整)
  - 13. PATH & FF/REW TIME CHECK(テープパス、FF/REW時間確認)
  - 14. PB ERROR RATE CHECK(再生エラーレート確認)
  - 15. REC CURRENT ADJUSTMENT(LEADING)(先行ヘッド記録電流調整)
  - 16. REC CURRENT ADJUSTMENT(TRAILING)(後行ヘッド記録電流調整)
  - 17. REC/PB ERROR RATE CHECK(自己録再エラーレート確認)
  - 18. SERVO DATA SAVE(サーボデータ保存)
  - 19. SERVO DATA DISPLAY(サーボデータ表示)
- 3. TEST
  - 1. KEY/DIAL(キー/ダイヤル)
  - 2. EL/LED(ELディスプレイ/LED)
  - 3. RS-232C
  - 4. SSP-8 SIGNAL PATH(SSP-8基板オーディオ信号経路)
- 4. INFORMATION
  - 1. HOUR METER(アワーメーター)
  - 2. TAPE(テープ再生データ)
  - 3. DIGITAL AUDIO INPUT(デジタルオーディオ入力信号)
  - 4. KEY/WARNING LOG(キー/ワーニング履歴)
  - 5. VERSION(バージョン) (V2.00~)

サービスメニューは、下記のメニューで構成されている。

- "1. PLAYER MECHANICAL DECK ADJUSTMENT"メニュー  
: プレーヤーメカデッキの調整、テストを行う。
- "2. RECORDER MECHANICAL DEC ADJUSTMENT"メニュー  
: レコーダーメカデッキの調整、テストを行う。
- "3. TEST"メニュー  
: 自己診断を行う。
- "4. INFORMATION"メニュー  
: アワーメーターやテープ情報などの各種情報を表示する。

サービスメニューへの入り方

- (1) 電源をONし、**[SHIFT]**キーを押しながら**[MODE]**キーを押す。サービスメニュー初期画面になる。
- (2) 各メニューに対応するファンクションキー(**[F1]**: [P-MD], **[F2]**: [R-MD], **[F3]**: [TEST], **[F4]**: [INFORM])を押す。

|  |    |    |    |    |    |    |  |
|--|----|----|----|----|----|----|--|
| SERVICE MENU                           |    |    |    |    |    |    |  |
| 1. PLAYER MECHANICAL DECK ADJUSTMENT   |    |    |    |    |    |    |  |
| 2. RECORDER MECHANICAL DECK ADJUSTMENT |    |    |    |    |    |    |  |
| 3. TEST                                |    |    |    |    |    |    |  |
| 4. INFORMATION                         |    |    |    |    |    |    |  |
|  |    |    |    |    |    |    |  |
| P-MD R-MD TEST INFORM                  |    |    |    |    |    |    |  |
| F1                                     | F2 | F3 | F4 | F5 | F6 | F7 |  |

サービスメニュー初期画面

サービスメニューの抜け方

- (1) 調整/テスト/インフォメーションメニューから初期画面にもどるには、**[F2]**[EXIT]キーを押す。
- (2) 通常モードに復帰するには、電源をOFFし再びONにする。オーディオエディットモードになる。

#### 1-5-1. "1.PLAYER MECHANICAL DECK ADJUSTMENT"メニュー

内容、調整方法等詳細は"第2章メカデッキの交換および調整"参照。

#### 1-5-2. "2.RECORDER MECHANICAL DECK ADJUSTMENT"メニュー

内容、調整方法等詳細は"第2章メカデッキの交換および調整"参照。

#### 1-5-3. "3. TEST"メニュー

テストメニューの項目

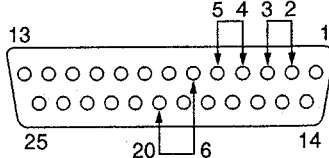
- 1 KEY/DIAL :キー/ダイヤル(サーチダイヤル、レベル/バランスつまみ)テスト
- 2 EL/DISPLAY :ELディスプレイ/LEDテスト
- 3 RS-232C :RS-232Cループバックテスト
- 4 SSP-8 SIGNAL PATH :SSP-8基板のオーディオ信号経路テスト

各テストメニューへの入り方

**[F1]**、**[F2]**キーで項目(テストメニュー)を選択し、**[F1]**[TEST ON]キーを押す。

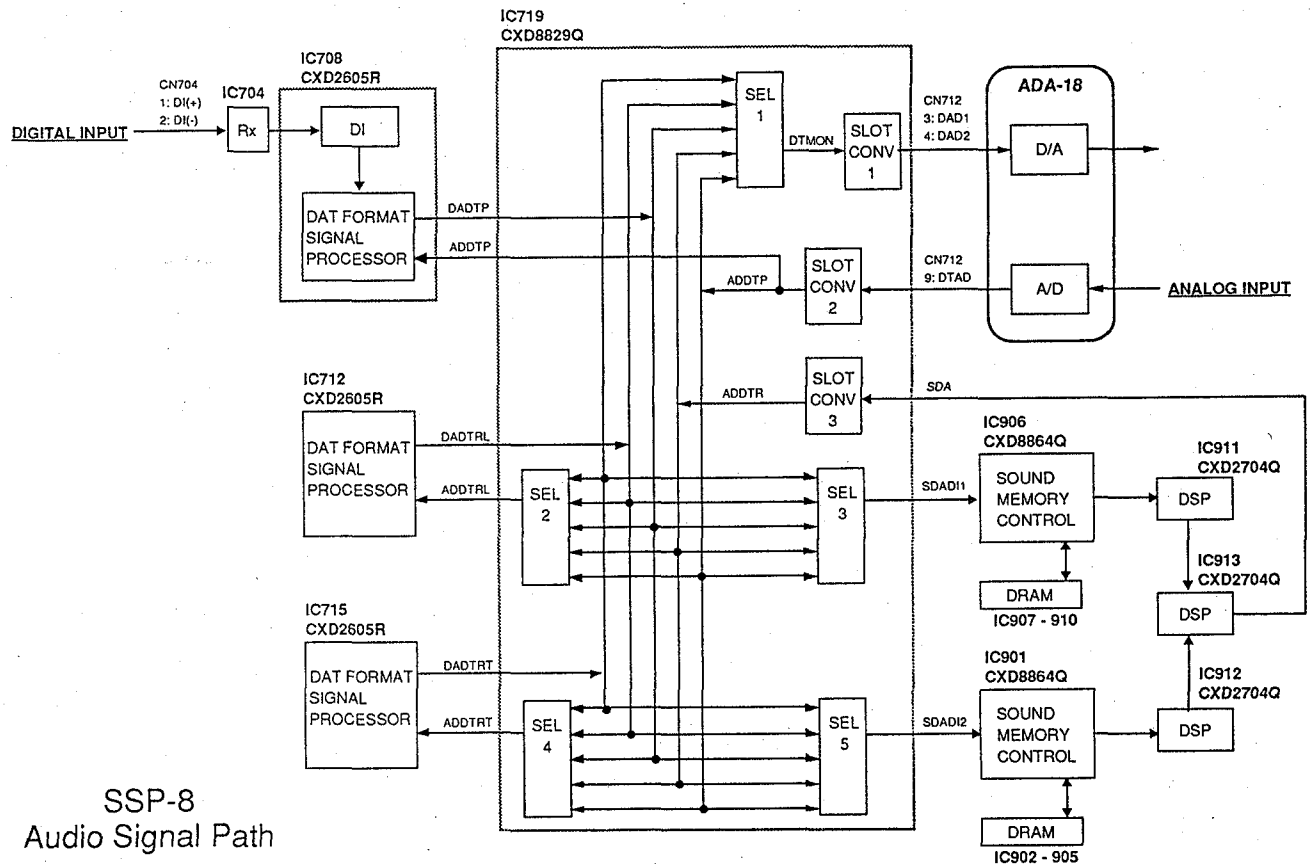
|                     |    |    |    |    |    |    |  |
|---------------------|----|----|----|----|----|----|--|
| SERVICE TEST        |    |    |    |    |    |    |  |
| ① KEY/DIAL          |    |    |    |    |    |    |  |
| 2 EL/DISPLAY        |    |    |    |    |    |    |  |
| 3 RS-232C           |    |    |    |    |    |    |  |
| 4 SSP-8 SIGNAL PATH |    |    |    |    |    |    |  |
|                     |    |    |    |    |    |    |  |
| TEST ON EXIT        |    |    |    |    |    |    |  |
| F1                  | F2 | F3 | F4 | F5 | F6 | F7 |  |

テストメニュー初期画面

| メニュー項目                                       | 説 明  |
|--|--|
| 1 KEY/DIAL<br>(キー/ダイヤルテスト)                   | <ul style="list-style-type: none"> <li>• キーテスト(41箇所) : キーを押している間、ELディスプレイのキー表示(押したキー)が点灯し、離すと網掛け表示となる。</li> <li>• ダイヤルテスト : JOGダイヤル、LEVEL/BALANCEつまみを回すと、回す方向により数値が+(増加)/-(減少)する。</li> </ul> <p>メニューの抜け方<br/> <b>[SHIFT]</b> キーを押しながら、<b>[F1]</b> [TEST OFF] キーを押す。</p>  |
| 2 EL/DISPLAY<br>(ELディスプレイ/LEDテスト)            | <ul style="list-style-type: none"> <li>• ELディスプレイ : ディスプレイ表示が全点灯→模様→全消灯を繰り返す。</li> <li>• LED (21箇所) : すべて点灯する。</li> </ul> <p>メニューの抜け方<br/> <b>[F1]</b> [TEST OFF] キーを押す。</p>   |
| 3 RS-232C<br>(RS-232Cループバックテスト)              | <p>RS-232Cのデータ送受信、コントロール信号の入・出力をチェックする。</p> <p>テスト方法</p> <p>(1) D-sub, 25ピン(オス)コネクタの<br/> 2ピン(TXD) ———→ 3ピン(RXD)<br/> 4ピン(RTS) ———→ 5ピン(CTS)<br/> 6ピン(DSR) ———→ 20ピン(DTR)<br/> 間をそれぞれ接続したコネクタを用意し、PCM-E7700のRS-232C コネクタ(リアパネル)に差し込む。</p> <p>(2) <b>[F3]</b> [START] キーを押す。<br/> テストが開始され、結果がディスプレイに表示される。<br/> エラー(FAULT表示)の場合:<br/> SSP-8基板の下記箇所のいずれかが不良と想定される。</p> <ul style="list-style-type: none"> <li>• IC116(UPD71101) : SCU(Serial Control Unit)</li> <li>• IC121(LT1134) : RS-232C Driver/Receiver</li> <li>• CN102または、ハーネスの断線</li> </ul> <p>メニューの抜け方<br/> <b>[F1]</b> [TEST OFF] キーを押す。</p> <div style="text-align: right;"> <p>-WIRING SIDE-</p>  <p>D-sub (25ピン、オス)</p> </div> |
| 4 SSP-8 SIGNAL PATH<br>(SSP-8基板オーディオ信号経路テスト) | <p>アナログ/デジタル入力端子に異なるオーディオ信号を入力し、SSP-8基板のオーディオ信号経路を切り換えたときに、信号(音)が出力されるかどうかにより、信号経路のICをチェックする。</p> <p>テスト方法</p> <p>(1) アナログ/デジタル入力端子に異なるオーディオ信号を入力する。<br/> (2) <b>[4]</b>、<b>[5]</b> キーで信号経路(PATH1~PATH12)を切り換えて、ディスプレイに表示されているアナログまたはデジタル入力信号(音)が出力されることを確認する。信号(音)が出力しない時は、ブロック図および表(1-9ページ)を使用して、不良ICを特定する。</p> <p><b>注意</b></p> <ol style="list-style-type: none"> <li>1. PATH-10とPATH-11は工場出荷時の検査用のため信号(音)は出力されない。</li> <li>2. PATH-12ではアナログ/デジタル入力信号(音)にかかわらず内部DSPから1 kHzの信号が出力される。</li> </ol> <p>メニューの抜け方<br/> <b>[F1]</b> [TEST OFF] キーを押す。</p>   |



オーディオ信号経路 ブロック図(SSP-8基板)



オーディオ信号経路番号と経路IC (SSP-8基板)

| PATH NO. | A/D ANALOG | IC704<br>AM26LS32<br>DIGITAL | IC708<br>CXD2605 | IC712<br>CXD2605 | IC715<br>CXD2605 | IC719 CXD8829 |       |       |       |       |        |        | IC906<br>CXD8864 | IC907-<br>910<br>DRAM | IC911<br>CXD2704 | IC901<br>CXD8864 | IC902-<br>905<br>DRAM | IC912<br>CXD2704 | IC913<br>CXD2704 | D/A |
|----------|------------|------------------------------|------------------|------------------|------------------|---------------|-------|-------|-------|-------|--------|--------|------------------|-----------------------|------------------|------------------|-----------------------|------------------|------------------|-----|
|          |            |                              |                  |                  |                  | SEL 1         | SEL 2 | SEL 3 | SEL 4 | SEL 5 | CONV 1 | CONV 2 | CONV 3           |                       |                  |                  |                       |                  |                  |     |
| PATH-1   | ○          |                              |                  |                  |                  | ○             |       |       |       |       | ○      | ○      |                  |                       |                  |                  |                       |                  |                  | ○   |
| PATH-2   |            | ○                            | ○                |                  |                  | ○             |       |       |       |       | ○      |        |                  |                       |                  |                  |                       |                  |                  | ○   |
| PATH-3   |            | ○                            | ○                |                  |                  | ○             |       | ○     |       |       | ○      |        | ○                |                       | ○                |                  |                       |                  | ○                | ○   |
| PATH-4   |            | ○                            | ○                |                  |                  | ○             |       | ○     |       |       | ○      |        | ○                | ○                     | ○                |                  |                       |                  | ○                | ○   |
| PATH-5   | ○          |                              | ○                |                  |                  | ○             |       |       |       |       | ○      | ○      |                  |                       |                  |                  |                       |                  |                  | ○   |
| PATH-6   | ○          |                              | ○                |                  |                  | ○             |       |       |       | ○     | ○      | ○      | ○                |                       |                  | ○                |                       | ○                | ○                | ○   |
| PATH-7   | ○          |                              | ○                |                  |                  | ○             |       |       |       | ○     | ○      | ○      | ○                |                       |                  | ○                | ○                     | ○                | ○                | ○   |
| PATH-8   | ○          |                              |                  | ○                |                  | ○             | ○     |       |       |       | ○      | ○      |                  |                       |                  |                  |                       |                  |                  | ○   |
| PATH-9   | ○          |                              |                  |                  | ○                | ○             |       |       | ○     |       | ○      | ○      |                  |                       |                  |                  |                       |                  |                  | ○   |
| PATH-10  | ○          |                              |                  | ○                | ○                | ○             | ○     |       |       |       | ○      | ○      |                  |                       |                  |                  |                       |                  |                  | ○   |
| PATH-11  | ○          |                              | ○                | ○                |                  | ○             | ○     |       |       |       | ○      | ○      |                  |                       |                  |                  |                       |                  |                  | ○   |
| PATH-12  |            |                              |                  |                  |                  | ○             |       |       |       |       | ○      |        | ○                |                       |                  |                  |                       |                  | ○                | ○   |

#### 1-5-4. "4. INFORMATION" メニュー

インフォメーションメニューは、下記の項目(メニュー)で構成されている。

- 1 HOUR METER: アワーメーター(積算時間計)
- 2 TAPE: テープ再生データ
- 3 DIGITAL AUDIO INPUT: デジタルオーディオ入力信号
- 4 KEY/WARNING LOG: キー/ワーニング履歴
- 5 VERSION: バージョン (V2.00~)

各インフォメーションメニューへの入り方

[F1], [F2]で項目を選択し、[F1] [EXIT]キーを押す。

#### SERVICE INFORMATION

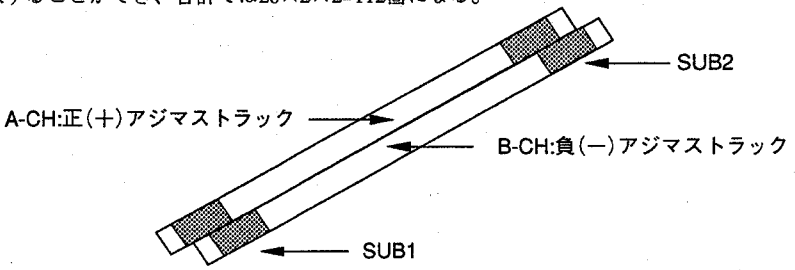
- [F1] HOUR METER
- 2 TAPE
- 3 DIGITAL AUDIO INPUT
- 4 KEY/WARNING LOG
- 5 VERSION

ENTER EXIT

F1 F2 F3 F4 F5 F6 F7

インフォメーションメニュー初期画面

| メニュー項目                    | 説明  |
|---------------------------|---|
| 1 HOUR METER<br>(アワーメーター) | <p>以下の積算時間または回数を表示する。</p> <p>OPERATION METER : 電源通電時間</p> <p>DRUM RUNNING METER : プレーヤ/レコーダー各デッキのドラム回転時間</p> <p>TAPE RUNNING METER : プレーヤ/レコーダー各デッキの走行時間</p> <p>THREADING/UNTHREADING COUNTER : プレーヤ/レコーダー各デッキのスレッド/アンスレッド回数</p> <p>メニューの抜け方<br/>[F2] [EXIT]キーを押す。</p>  |
| 2 TAPE<br>(テープ再生データ)      | <p>再生エラーレートおよび再生テープ情報を表示する。<br/>再生テープ情報はグループ1, 2, 3に分かれており、[F1]、[F2]キーで選択する。<br/>選択されていないグループの表示データは更新されない。</p> <ul style="list-style-type: none"> <li>• テープ走行モード</li> <li>• A-ch, B-chの平均エラーレート</li> </ul> <p><u>グループ1</u></p> <ul style="list-style-type: none"> <li>• メインID <ul style="list-style-type: none"> <li>ADRS : フレームアドレス</li> <li>F-ID : フォーマットID</li> <li>ID1 : エンファシス</li> <li>ID2 : サンプリング周波数</li> <li>ID3 : チャンネル数</li> <li>ID4 : 量子化</li> <li>ID5 : トラックピッチ</li> <li>ID6 : デジタルコピー</li> <li>ID7 : バック</li> </ul> </li> <li>• サブID <ul style="list-style-type: none"> <li>DATA ID : データID</li> <li>TOC : コントロールID内のTOC ID</li> <li>SKIP : コントロールID内のショートニングID</li> <li>START : コントロールID内のスタートID</li> <li>PRIORITY : コントロールID内のプライオリティID</li> <li>PGM No. : プログラム番号</li> <li>PACK ID : バックID</li> </ul> </li> <li>• タイムコード <ul style="list-style-type: none"> <li>PRO R-TIME : プロRタイム(H:M:S:F)</li> <li>A-TIME : アブソリュートタイム(H:M:S:F)</li> <li>TC MARKER : プロRタイム内のタイムコードマーカー(10進数)</li> <li>TC FORMAT : プロRタイム内のタイムコードプラグ</li> <li>UBIT : プロバイナリー(ユーザービット)</li> </ul> </li> </ul> |

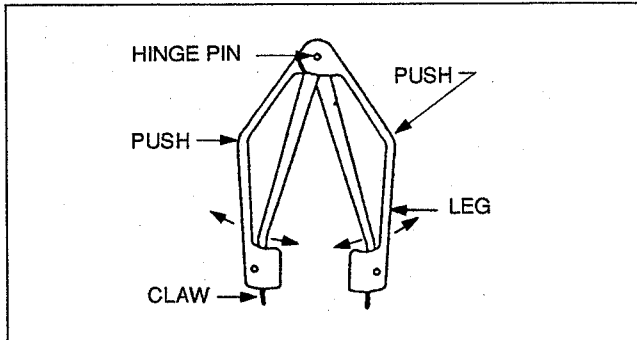
| メニュー項目  | 説 明   |
|---|---|
|   | <p><u>グループ2</u></p> <ul style="list-style-type: none"> <li>サブコード内バックIDとその記録位置:<br/>サブコードエリアに記録されているバックIDと記録位置を表示する。<br/>DATフレーム(30msec)は2トラック(A-ch/B-ch)で構成され、各トラックにはSUB1とSUB2の2つのサブコードエリアがある。各エリアには28箇のバック(A-TIMEやPRO R-TIMEなど)を記録することができ、合計では28×2×2=112箇になる。</li> </ul>  <p><u>グループ3</u></p> <ul style="list-style-type: none"> <li>絶対値変換した16bit再生オーディオ信号のビットマップメーター*)。<br/>左端がビット0で、右端がオーバーを示す。(0000H~7FFFH, 80000H: OVER)</li> </ul> <div style="text-align: center;"> bit0 <span style="float: right;">bit14 OVER</span><br/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> <p>*) : ビットマップメーター<br/>16ビットオーディオデータの各ビットを1つのメーターセグメントに対応させ、ビットが1のときに点灯させる表示方式。</p> <p>各操作キー</p> <ul style="list-style-type: none"> <li>テープ走行キー : <span style="border: 1px solid black; padding: 0 2px;">EJECT</span> <span style="border: 1px solid black; padding: 0 2px;">STOP</span> <span style="border: 1px solid black; padding: 0 2px;">PLAY</span> <span style="border: 1px solid black; padding: 0 2px;">FF</span> <span style="border: 1px solid black; padding: 0 2px;">REW</span> <span style="border: 1px solid black; padding: 0 2px;">SHUTTLE</span></li> <li>グループ切り換え : <span style="border: 1px solid black; padding: 0 2px;">F1</span>、<span style="border: 1px solid black; padding: 0 2px;">F4</span> キー</li> <li>デッキ切り換え : <span style="border: 1px solid black; padding: 0 2px;">F3</span> <span style="border: 1px solid black; padding: 0 2px;">[DECK]</span> キー</li> </ul> <p>メニューの抜け方<br/><span style="border: 1px solid black; padding: 0 2px;">F2</span> <span style="border: 1px solid black; padding: 0 2px;">[EXIT]</span> キーを押す。</p> |
| <b>3 DIGITAL AUDIO INPUT</b><br>(デジタルオーディオ入力信号) | <p>受信状態とチャンネルステータス情報を表示する。</p> <ul style="list-style-type: none"> <li>PLL : PLL回路のLOCK/UNLOCK</li> <li>FREQUENCY : 入力信号周波数の偏差<br/>LOCK : 約±1000ppm内<br/>UNLOCK: 範囲外</li> <li>チャンネルステータス <ul style="list-style-type: none"> <li>(1) PRO/CONがプロのとき<br/>DATA : オーディオ/ノンオーディオ<br/>CHANNEL : チャンネルモード<br/>Fs ID : サンプリング周波数ID<br/>EMPHASIS ID : エンファシスID</li> <li>(2) PRO/CONがコンシューマのとき<br/>CATEGORY : カテゴリコード<br/>Fs ID : サンプリング周波数ID<br/>EMPHASIS ID : エンファシスID<br/>COPY ID : コピーID</li> </ul> </li> <li>絶対値変換した16bit再生オーディオ信号のビットマップメーター。<br/>左端がビット0で、右端がオーバーを示す。(0000H~7FFFH, 80000H: OVER)</li> </ul> <div style="text-align: center;"> bit0 <span style="float: right;">bit14 OVER</span><br/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> <p>メニューの抜け方<br/><span style="border: 1px solid black; padding: 0 2px;">F2</span> <span style="border: 1px solid black; padding: 0 2px;">[EXIT]</span> キーを押す。</p>  |

| メニュー項目                            | 説 明   |
|-----------------------------------|---|
| 4 KEY/WARNING LOG<br>(キー/ワーニング履歴) | <p>押したキーと発生したワーニングエラーの履歴を表示する。ただし、このモードでのキー操作はメモリーしない。</p> <p>メモリー数は、240ポイント(1～15ページ)</p> <ul style="list-style-type: none"> <li>• NO. : 通し番号</li> <li>• MODE : 動作モード</li> <li>• SUB MODE : サブモード</li> <li>• KEY/WARNING : キー名称、またはワーニング番号</li> <li>• DATE, TIME : 月/日、時/分/秒</li> </ul> <p><b>[SHIFT]</b>キーとの二重押しの場合、キー名称の脇にⓈが表示される。</p> <p>各操作キー</p> <ul style="list-style-type: none"> <li>• ページ切り換え : <b>[F6]</b>[↑], <b>[F7]</b>[↓]キー</li> <li>• メモリーの消去 : <b>[F4]</b>[CLEAR]キー</li> </ul> <p>メニューの抜け方</p> <p><b>[F2]</b>[EXIT]キーを押す。</p> |
| 5 VERSION<br>(バージョン)              | <p>次のプレーヤー、レコーダー、インターフェイスROMの情報を表示する。</p> <ul style="list-style-type: none"> <li>• バージョン履歴</li> <li>• バージョン</li> <li>• チェックサム(8ビットタイプと16ビットタイプ)</li> </ul> <p>メニューの抜け方</p> <p><b>[F2]</b>[EXIT]キーを押す。</p>   |

### 1-4-3. Removal of PLCC IC

The Extraction Tool is useful for removing the IC (PLCC type) inserted into an IC socket. This is useful for all sizes of ICs 20 pins through 124 pins.

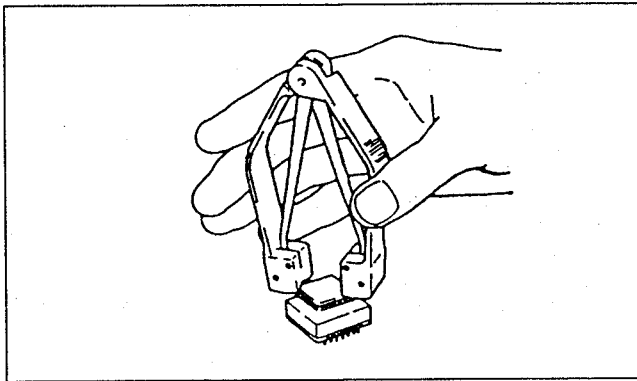
Extraction Tool (for PLCC socket)  
Sony Part No. J-6035-070-A



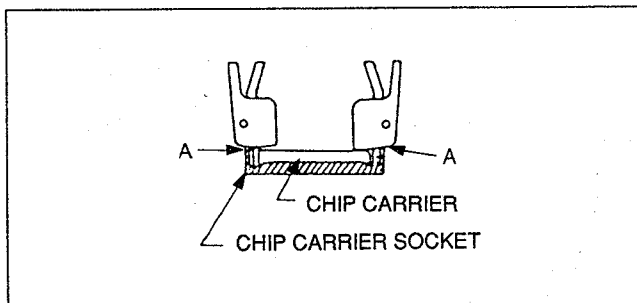
**Note:**

- Never pull chips of IC upward with the Extraction Tool.
- Never hold the Extraction Tool on a strong force.

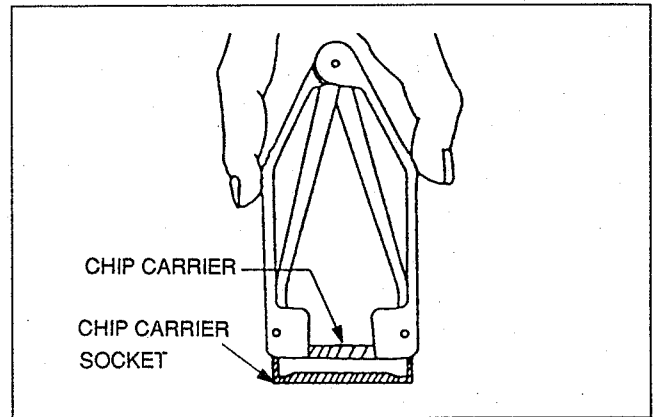
(1) Adjust which so that claws of the tool are matched to the socket of an IC.



(2) Insert the claws of the tool into the slots of the socket, and then press the tool against the socket so that the A portion shown in the figure contact to the socket.



(3) Hold the tool as shown in the figure. The socket is pressed on a little force to downward.



(4) Pinch the tool, so the legs of the tool are straightened. At that time, the claws pinch the chips of the IC and pull the IC upward.

(5) After pulling the IC, loosen the force of the fingers, and take off the chip.

## 1-5. SERVICE MENU

### Service Menu Item List

#### Service Menu

- 1. PLAYER MECHANICAL DECK ADJUSTMENT
  - 1. SERVO DATA PRESET
  - 2. PLUNGER CHECK
  - 3. MECHANICAL DEVICE TEST
  - 4. RECOGNITION SWITCH CHECK
  - 5. END SENSOR LEVEL CHECK (HIGH)
  - 6. END SENSOR LEVEL CHECK (LOW)
  - 7. DEW SENSOR CHECK
  - 8. REEL TORQUE CHECK
  - 9. FWD/RVS TORQUE ADJUSTMENT
  - 10. DRUM/CAPSTAN SPEED & WOW CHECK
  - 11. TAPE PATH ADJUSTMENT
  - 12. SWP POSITION ADJUSTMENT
  - 13. PATH & FF/REW TIME CHECK
  - 14. PB ERROR RATE CHECK
  - 15. -----
  - 16. -----
  - 17. -----
  - 18. SERVO DATA SAVE
  - 19. SERVO DATA DISPLAY
- 2. RECORDER MECHANICAL DECK ADJUSTMENT
  - 1. SERVO DATA PRESET
  - 2. PLUNGER CHECK
  - 3. MECHANICAL DEVICE TEST
  - 4. RECOGNITION SWITCH CHECK
  - 5. END SENSOR LEVEL CHECK (HIGH)
  - 6. END SENSOR LEVEL CHECK (LOW)
  - 7. DEW SENSOR CHECK
  - 8. REEL TORQUE CHECK
  - 9. FWD/RVS TORQUE ADJUSTMENT
  - 10. DRUM/CAPSTAN SPEED & WOW CHECK
  - 11. TAPE PATH ADJUSTMENT
  - 12. SWP POSITION ADJUSTMENT
  - 13. PATH & FF/REW TIME CHECK
  - 14. PB ERROR RATE CHECK
  - 15. REC CURRENT ADJUSTMENT(LEADING)
  - 16. REC CURRENT ADJUSTMENT(TRAILING)
  - 17. REC/PB ERROR RATE CHECK
  - 18. SERVO DATA SAVE
  - 19. SERVO DATA DISPLAY
- 3. TEST
  - 1. KEY/DIAL
  - 2. EL/LED
  - 3. RS-232C
  - 4. SSP-8 SIGNAL PATH
- 4. INFORMATION
  - 1. HOUR METER
  - 2. TAPE
  - 3. DIGITAL AUDIO INPUT
  - 4. KEY/WARNING LOG
  - 5. VERSION(V2.00 and Higher)

**The service menu consists of the following;**

- "1. PLAYER MECHANICAL DECK ADJUSTMENT" menu  
: This menu performs adjustment/tests of the player mechanical deck.
- "2. RECORDER MECHANICAL DECK ADJUSTMENT" menu  
: This menu performs adjustment/test of the recorder mechanical deck.
- "3. TEST" menu  
: This menu performs self-diagnosis.
- "4. INFORMATION" menu  
: This menu indicates various information on the hour meters and the tape.

**How to enter the service menu**

- (1) Turn the power on, and press the **MODE** key while pressing the **SHIFT** key, and the menu (initial) will appear.
- (2) Press function keys (**F1**: [P-MD], **F2**: [R-MD], **F3**: [TEST], **F4**: [INFORM]) corresponding to each menu.

**SERVICE MENU**

1. PLAYER MECHANICAL DECK ADJUSTMENT
2. RECORDER MECHANICAL DECK ADJUSTMENT
3. TEST
4. INFORMATION

P-MD R-MD TEST INFORM

F1 F2 F3 F4 F5 F6 F7

**Service Menu (initial)**

**How to exit from the service menu**

- (1) Press the **F2**[EXIT] key to get access to the initial display from the adjustment/test/information menus.
- (2) To restore the normal mode, turn the power off and on again, and audio edit mode will be activated.

**1-5-1. "1. PLAYER MECHANICAL DECK ADJUSTMENT" menu**

This is described on the "SECTION 2 REPLACEMENT AND ADJUSTMENT OF MECHANISM DECK".

**1-5-2. "2. RECORDER MECHANICAL DECK ADJUSTMENT" menu**

This is described on the "SECTION 2 REPLACEMENT AND ADJUSTMENT OF MECHANISM DECK".

**1-5-3. "3. TEST" menu**

**The test menu consists of the following;**

- 1 KEY/DIAL : Key/dial (search dial, level/balance control) test
- 2 EL/DISPLAY : EL display/LED test
- 3 RS-232C : RS-232C loop back test
- 4 SSP-8 SIGNAL PATH : Audio signal path test for SSP-8 board

**How to enter each test menu**

Use **F1** and **F2** keys for selection, and press the **F1** [TEST ON] key.

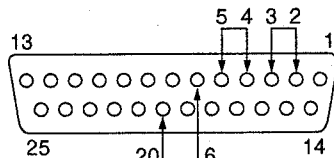
**SERVICE TEST**

- F1** KEY/DIAL
- 2 EL/DISPLAY
- 3 RS-232C
- 4 SSP-8 SIGNAL PATH

TEST ON EXIT

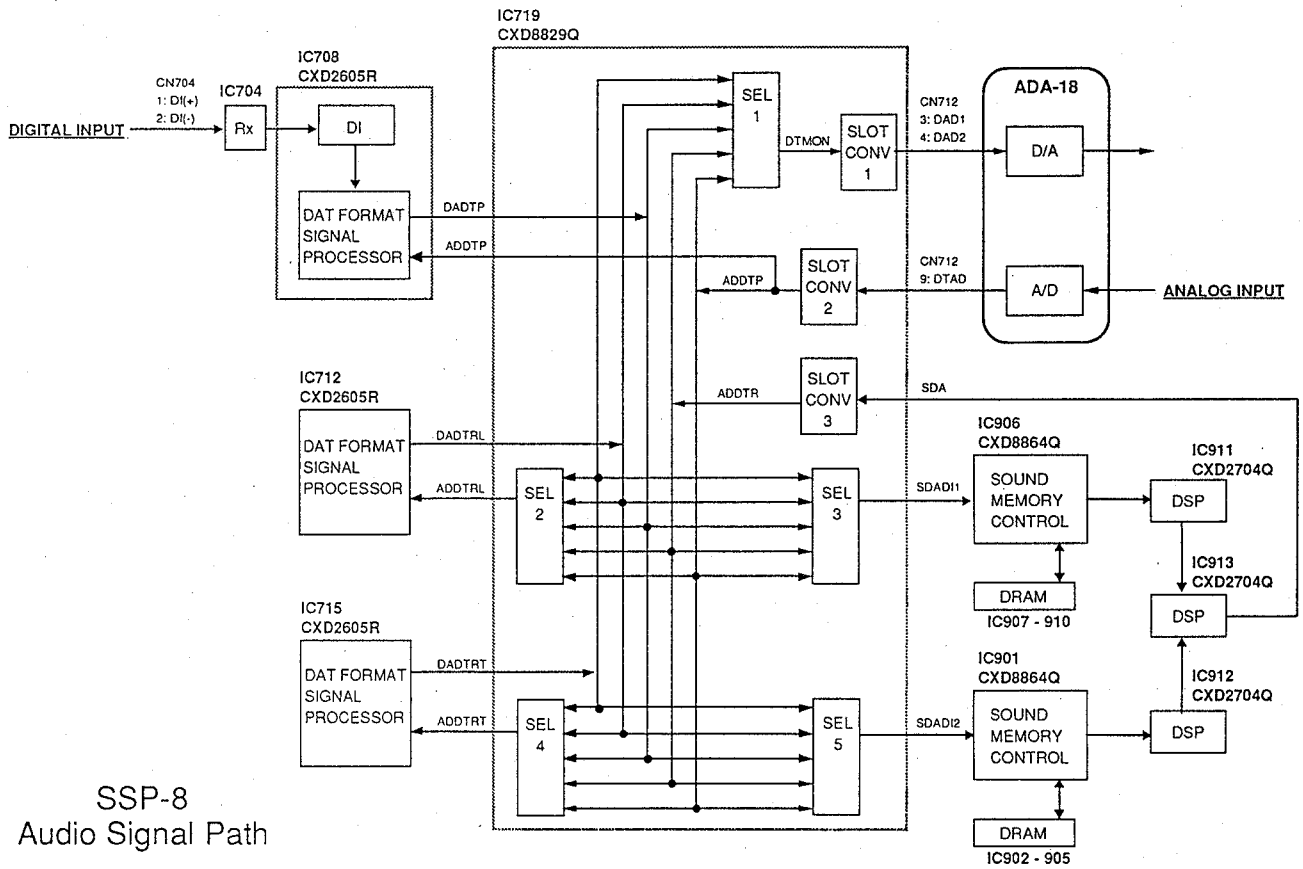
F1 F2 F3 F4 F5 F6 F7

**Test Menu (initial)**

| Menu   | Description  |
|--|--|
| 1 KEY/DIAL<br>(Key/dial test)  | <ul style="list-style-type: none"><li>• Key test(41 places) : The key indication on the EL display flashes while the key is pressed, and it is cross-hatched when the key is released.</li><li>• Dial test : Values are increased/decreased according to the turning direction(JOG dial or LEVEL/BALANCE control).</li></ul> <p><b>How to exit</b><br/>Press the <b>[F1]</b> [TEST OFF] key while pressing the <b>[SHIFT]</b> key.</p>   |
| 2 EL/DISPLAY<br>(EL display/LED test)                                      | <ul style="list-style-type: none"><li>• EL display : All EL display indications come on → patterned → All EL display indications go off.</li><li>• LED (21places) : All LEDs come on.</li></ul> <p><b>How to exit</b><br/>Press the <b>[F1]</b> [TEST OFF] key</p>   |
| 3 RS-232C<br>(RS-232C loop back test)                                      | <p>Data transferring/receiving and control signal inputting/outputting of the RS-232C are chekced.</p> <p><b>Procedure</b></p> <p>(1) Prepare a 25-pin D-sub connector (male) of which pins are connected as follows:<br/>pin 2 (TXD) ——— pin3 (RXD)<br/>pin 4 (RTS) ——— pin 5 (CTS)<br/>pin 6 (DSR) ——— pin 20 (DTR)<br/>Then insert it into the RS-232C connector on the rear panel (PCM-E7700).</p> <p>(2) Press the <b>[F3]</b> [START] key.<br/>Then the test will start and the results will be displayed.<br/>In case of an error (FAULT), the following on the SSP-8 board can be considered defective:</p> <ul style="list-style-type: none"><li>• IC116(UPD71101); SCU(Serial Control Unit)</li><li>• IC121(LT1134); RS-232C Driver/Receiver</li><li>• Disconnection of CN102 or harnesses</li></ul> <p><b>How to exit</b><br/>Press the <b>[F1]</b> [TEST OFF] key.</p> <div><p>-WIRING SIDE-</p><p>D-sub(25 pin male)</p></div> |
| 4 SSP-8 SIGNAL PATH<br>(Audio signal pathsignal path test for SSP-8 board) | <p>Input different audio signals into the analog/digital input connector and check whether or not audio output is available when the audio signal path on the SSP-8 board is changed over.</p> <p><b>Procedure</b></p> <p>(1) Input different audio signals to the analog/digital input connector.</p> <p>(2) Use <b>[A]</b> and <b>[D]</b> keys to change over the signal path, and check that analog or digital input audio signal displayed will be output.</p> <p><b>Note</b></p> <ol style="list-style-type: none"><li>1. As for PATH-10 and PATH-11, audio signal is not output because they are for inspection at shipment from the factory.</li><li>2. As for PATH-12, 1 kHz signal is output from the internal DSP irrespective of the type of the input audio.</li></ol> <p><b>How to exit</b><br/>Press the <b>[F1]</b> [TEST OFF] key.</p>   |



Audio signal path block diagram (SSP-8 board)



SSP-8  
Audio Signal Path

Audio signal path No. and ICs (SSP-8 board)

| PATH NO. | A/D<br>ANALOG         | IC704<br>AM26LS32<br>DIGITAL | IC708<br>CXD2605      | IC712<br>CXD2605      | IC715<br>CXD2605      | IC719 CXD8829         |                       |                       |                       |                       |                       |                       | IC906<br>CXD8864      | IC907-<br>910<br>DRAM | IC911<br>CXD2704      | IC901<br>CXD8864      | IC902-<br>905<br>DRAM | IC912<br>CXD2704      | IC913<br>CXD2704      | D/A |
|----------|-----------------------|------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----|
|          |                       |                              |                       |                       |                       | SEL<br>1              | SEL<br>2              | SEL<br>3              | SEL<br>4              | SEL<br>5              | CONV<br>1             | CONV<br>2             |                       |                       |                       |                       |                       |                       |                       |     |
| PATH-1   | <input type="radio"/> |                              |                       |                       |                       | <input type="radio"/> |                       |                       |                       |                       | <input type="radio"/> | <input type="radio"/> |                       |                       |                       |                       |                       |                       | <input type="radio"/> |     |
| PATH-2   |                       | <input type="radio"/>        | <input type="radio"/> |                       |                       | <input type="radio"/> |                       |                       |                       |                       | <input type="radio"/> |                       |                       |                       |                       |                       |                       |                       | <input type="radio"/> |     |
| PATH-3   |                       | <input type="radio"/>        | <input type="radio"/> |                       |                       | <input type="radio"/> |                       | <input type="radio"/> |                       |                       | <input type="radio"/> |                       | <input type="radio"/> |                       | <input type="radio"/> |                       |                       | <input type="radio"/> | <input type="radio"/> |     |
| PATH-4   |                       | <input type="radio"/>        | <input type="radio"/> |                       |                       | <input type="radio"/> |                       | <input type="radio"/> |                       |                       | <input type="radio"/> |                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |                       |                       | <input type="radio"/> | <input type="radio"/> |     |
| PATH-5   | <input type="radio"/> |                              | <input type="radio"/> |                       |                       | <input type="radio"/> |                       |                       |                       |                       | <input type="radio"/> | <input type="radio"/> |                       |                       |                       |                       |                       |                       | <input type="radio"/> |     |
| PATH-6   | <input type="radio"/> |                              | <input type="radio"/> |                       |                       | <input type="radio"/> |                       |                       |                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |                       |                       |                       | <input type="radio"/> |                       | <input type="radio"/> | <input type="radio"/> |     |
| PATH-7   | <input type="radio"/> |                              | <input type="radio"/> |                       |                       | <input type="radio"/> |                       |                       |                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |                       |                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |     |
| PATH-8   | <input type="radio"/> |                              |                       | <input type="radio"/> |                       | <input type="radio"/> | <input type="radio"/> |                       |                       |                       | <input type="radio"/> | <input type="radio"/> |                       |                       |                       |                       |                       |                       | <input type="radio"/> |     |
| PATH-9   | <input type="radio"/> |                              |                       |                       | <input type="radio"/> | <input type="radio"/> |                       |                       | <input type="radio"/> |                       | <input type="radio"/> | <input type="radio"/> |                       |                       |                       |                       |                       |                       | <input type="radio"/> |     |
| PATH-10  | <input type="radio"/> |                              |                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |                       |                       |                       | <input type="radio"/> | <input type="radio"/> |                       |                       |                       |                       |                       |                       | <input type="radio"/> |     |
| PATH-11  | <input type="radio"/> |                              | <input type="radio"/> | <input type="radio"/> |                       | <input type="radio"/> | <input type="radio"/> |                       |                       |                       | <input type="radio"/> | <input type="radio"/> |                       |                       |                       |                       |                       |                       | <input type="radio"/> |     |
| PATH-12  |                       |                              |                       |                       |                       | <input type="radio"/> |                       |                       |                       |                       | <input type="radio"/> |                       | <input type="radio"/> |                       |                       |                       |                       | <input type="radio"/> | <input type="radio"/> |     |

#### 1-5-4. "4. INFORMATION" menu

The information menu consists of the following;

- 1 HOUR METER : Hour meter (integrating hour meter)
- 2 TAPE : Off tape data
- 3 DIGITAL AUDIO INPUT : Digital audio input signal
- 4 KEY/WARNING LOG : Key/warning log
- 5 VERSION : Version (V2.00 and Higher)

#### How to enter each information menu

Use  $\uparrow$  and  $\downarrow$  keys for selection, and press the  $\boxed{F1}$  [ENTER] key.

|                     |                     |
|---------------------|---------------------|
| SERVICE INFORMATION |                     |
| $\boxed{1}$         | HOUR METER          |
| 2                   | TAPE                |
| 3                   | DIGITAL AUDIO INPUT |
| 4                   | KEY/WARNING LOG     |
| 5                   | VERSION             |
| ENTER EXIT          |                     |
| F1                  | F2 F3 F4 F5 F6 F7   |

Information Menu (initial)

| Menu                                | Description  |
|-------------------------------------|--|
| <b>1 HOUR METER</b><br>(Hour meter) | <p>The types of the hour meters are as follows:<br/>OPERATION METER : shows power-on time.</p> <p>The following three meters are assembled into each deck of the players and the recorders:<br/>DRUM RUNNING METER : shows drum rotation time.<br/>TAPE RUNNING METER : shows tape running time.<br/>THREADING/UNTHREADING COUNTER : shows No. of threading/unthreading.</p> <p><b>How to exit</b><br/>Press the <math>\boxed{F2}</math> [EXIT] key.</p>   |
| <b>2 TAPE</b><br>(Off tape data)    | <p>In this menu, playback error rate and playback tape information are described.<br/>Playback tape information consists of three groups (1,2,and3), and use <math>\uparrow</math> and <math>\downarrow</math> keys for selection.</p> <ul style="list-style-type: none"> <li>• Tape running mode</li> <li>• Average error rate of A-ch and B-ch</li> </ul> <p><u>Group1</u></p> <ul style="list-style-type: none"> <li>• Main ID <ul style="list-style-type: none"> <li>ADRS : Frame Address</li> <li>F-ID : Format ID</li> <li>ID1 : Emphasis</li> <li>ID2 : Sampling Frequency</li> <li>ID3 : No. of Channels</li> <li>ID4 : Quantization</li> <li>ID5 : Track Pitch</li> <li>ID6 : Digital Copy</li> <li>ID7 : Pack</li> </ul> </li> <li>• Sub ID <ul style="list-style-type: none"> <li>DATA ID : Data ID</li> <li>TOC : TOC ID in control ID</li> <li>SKIP : Shortening ID in control ID</li> <li>START : Start ID in control ID</li> <li>PRIORITY : Priority ID in control ID</li> <li>PGM No. : Program No.</li> <li>PACK ID : Pack ID</li> </ul> </li> <li>• Time code <ul style="list-style-type: none"> <li>PRO R-TIME : Pro R time (H:M:S:F)</li> <li>A-TIME : Absolute time (H:M:S:F)</li> <li>TC MARKER : Time code marker in pro R time (decimal number)</li> <li>TC FORMAT : Time code flag in pro R time</li> <li>UBIT : Pro binary (user bit)</li> </ul> </li> </ul> |



| Menu   | Description   |
|--|---|
| <b>4 KEY/WARNING LOG</b><br><b>(Key/warning log)</b> | <p>Log of keys pressed and warning errors are indicated. In this mode, however, key operation is not memorized.</p> <p>The capacity of the memory is 240 points (1 to 15 pages).</p> <ul style="list-style-type: none"> <li>• NO. : Serial No.</li> <li>• MODE : Operation mode</li> <li>• SUB MODE : Sub mode</li> <li>• KEY/WARNING : Key name or warning No.</li> <li>• DATE, TIME : Month/date, hour/minute/second</li> </ul> <p>When the <b>[SHIFT]</b> key is pressed at the same time, S appears by the key name.</p> <p>Operation key</p> <ul style="list-style-type: none"> <li>• Page switch : <b>[F6]</b> [↑], <b>[F7]</b> [↓] key</li> <li>• Memory clear : <b>[F4]</b> [CLEAR] key</li> </ul> <p><b>How to exit</b><br/> Press the <b>[F2]</b> [EXIT] key.</p> |
| <b>5 VERSION</b>                                     | <p>Version of PLAYER, RECORDER and INTERFACE ROM are indicated.</p> <ul style="list-style-type: none"> <li>• Version History</li> <li>• Version</li> <li>• Checsum (8 bit type and 16 bit type)</li> </ul> <p><b>How to exit</b><br/> Press the <b>[F2]</b> [EXIT] key.</p>   |

## SAFETY CHECK-OUT

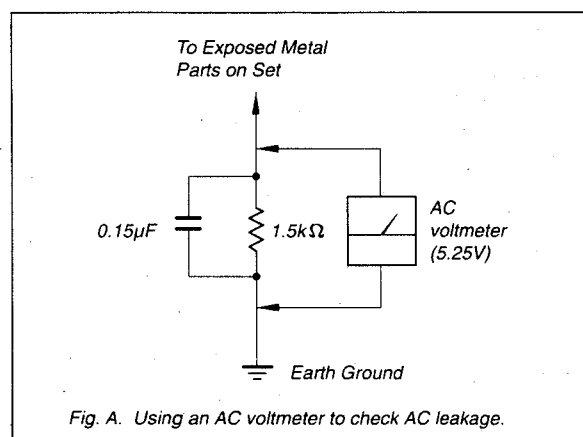
After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 5.25V so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20V AC range are suitable. (See Fig. A)



## CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.  
Dispose of used batteries according to the manufacturer's instructions.



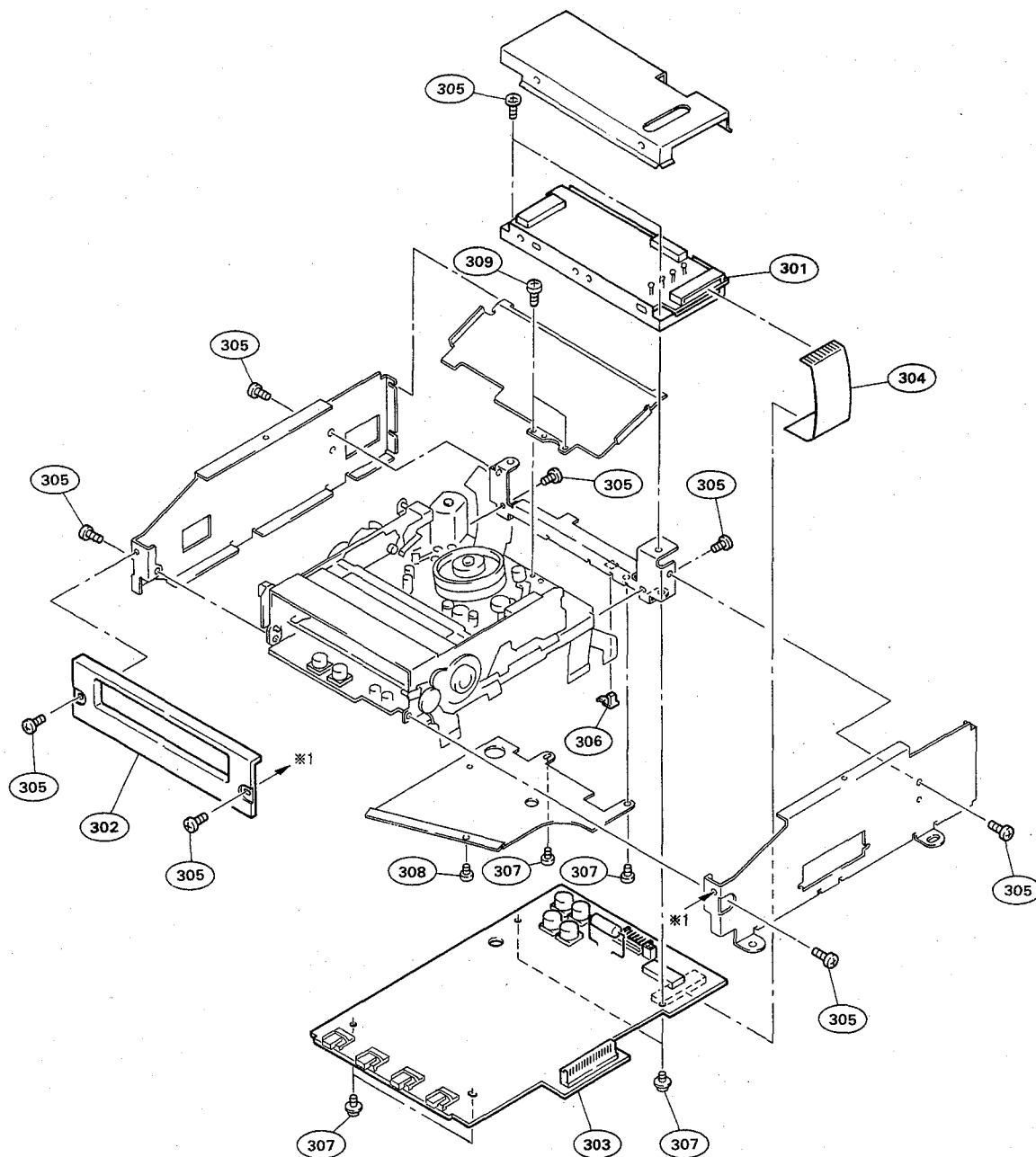
## SECTION 4 BOARD LAYOUTS

| Board                                | Function   | Page |
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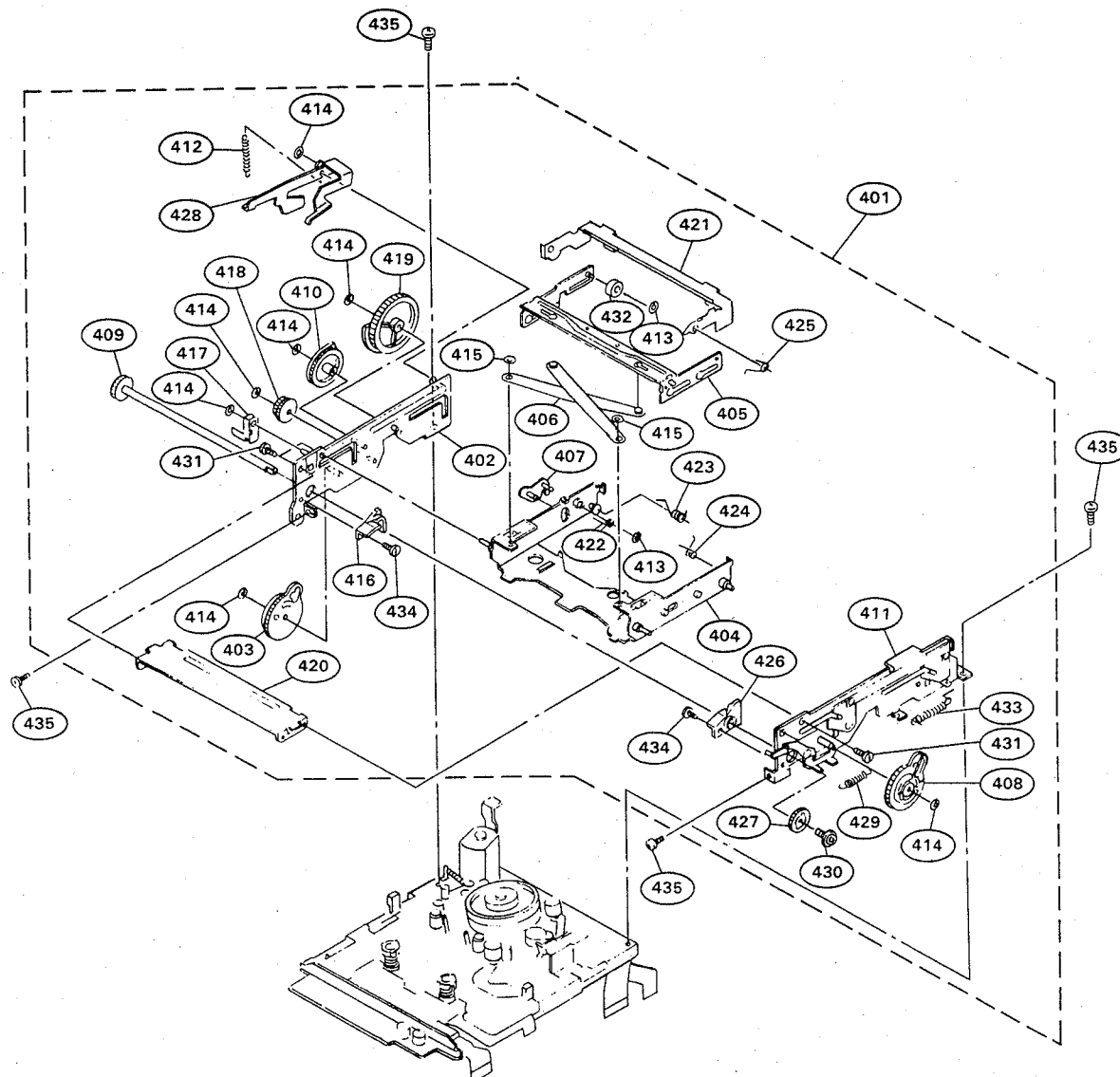


# **MECHANICAL DECK (PLAYER AND RECORDER) ASSY CASE SECTION**



| No. | Part No.     | SP Description                   |
|-----|--------------|----------------------------------|
| 301 | A-8310-132-A | o RF-53 ASSY(RP)                 |
| 302 | A-8267-753-B | o WINDOW ASSY, CASSETTE          |
| 303 | A-8310-133-A | o MOUNTED CIRCUIT BOARD, SV-147  |
| 304 | 1-764-402-11 | s WIRE, FLEXIBLE CARD(1.00MM)18P |
| 305 | 3-374-615-11 | s SCREW(M2), BIND                |
| 306 | 3-671-150-11 | o CLAMP                          |
| 307 | 3-703-502-21 | s SCREW                          |
| 308 | 7-627-850-08 | s SCREW, PRECISION +P 1.4X2      |
| 309 | 7-627-850-47 | s SCREW, PRECISION +P 1.4X1.6    |

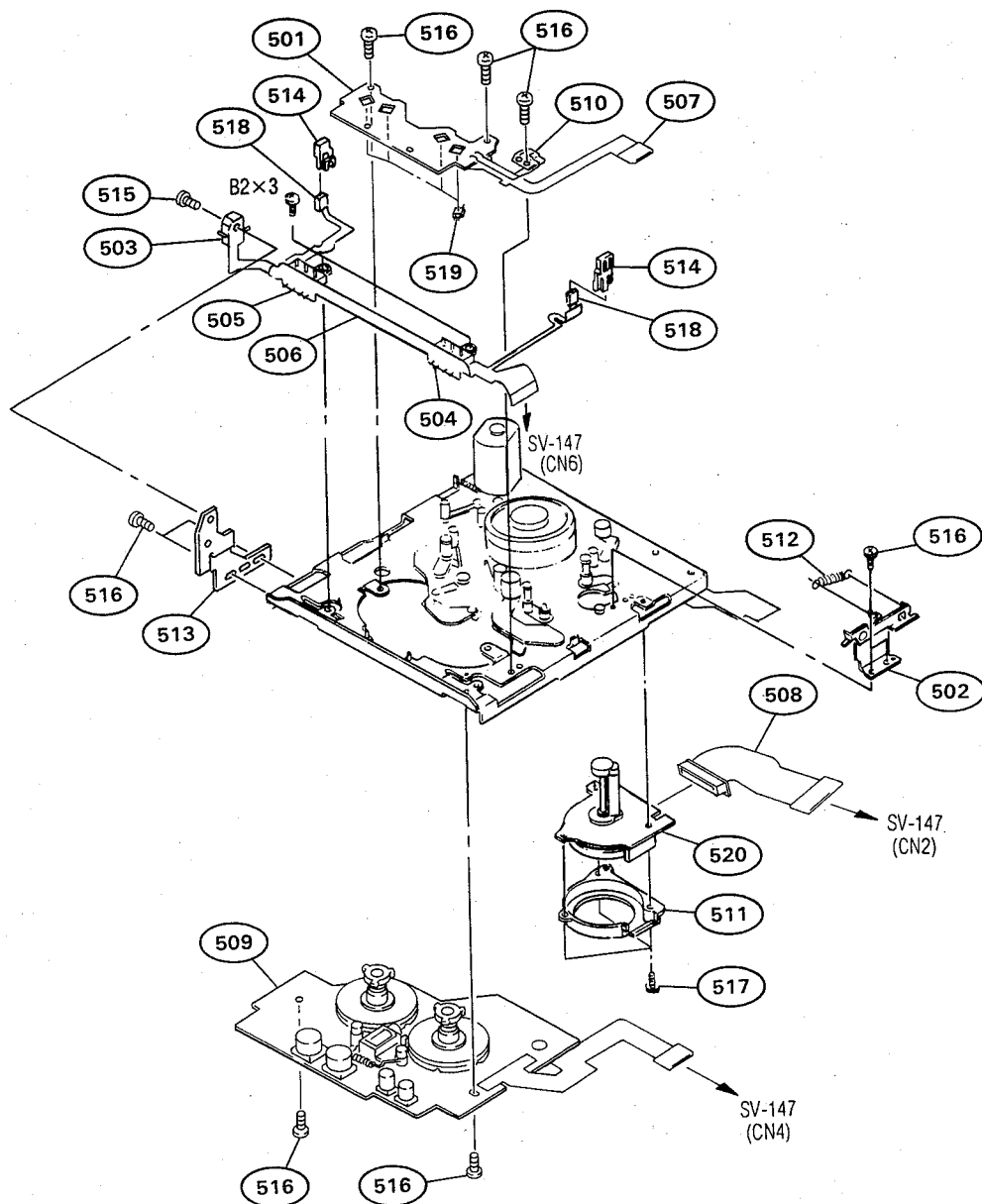
## CASSETTE COMPARTMENT SECTION



| No. | Part No.     | SP Description              |
|-----|--------------|-----------------------------|
| 401 | A-8267-998-B | s CASSETTE COMPARTMENT ASSY |
| 402 | X-3363-985-5 | s PLATE (LEFT) ASSY, SIDE   |
| 403 | X-3363-986-2 | s GEAR (LEVER LEFT) ASSY    |
| 404 | X-3363-987-7 | s HOLDER ASSY, CASSETTE     |
| 405 | X-3363-989-2 | s SLIDER (CASSETTE) ASSY    |
| 406 | X-3363-990-1 | s LEVER ASSY, X             |
| 407 | X-3363-991-3 | s LEVER ASSY, SLIDER LOCK   |
| 408 | X-3363-995-2 | s GEAR (LEVER RIGHT) ASSY   |
| 409 | X-3363-996-1 | s GEAR (JOINT) ASSY         |
| 410 | X-3366-603-1 | s GEAR (C3) ASSY            |
| 411 | X-3367-014-1 | s PLATE (RIGHT) ASSY, SIDE  |
| 412 | 3-140-263-99 | s SPRING, TENSION           |
| 413 | 3-321-393-01 | s WASHER, STOPPER           |
| 414 | 3-341-752-11 | s WASHER, POLYETHYLENE      |
| 415 | 3-341-753-11 | s WASHER, POLYETHYLENE      |
| 416 | 3-374-680-01 | s GUIDE (CASSETTE LEFT)     |
| 417 | 3-374-681-01 | s LEVER (SWITCH)            |
| 418 | 3-374-686-01 | s GEAR                      |
| 419 | 3-374-688-01 | s GEAR (C2)                 |
| 420 | 3-374-689-01 | s PLATE, JOINT              |

| No. | Part No.     | SP Description                     |
|-----|--------------|------------------------------------|
| 421 | 3-374-713-01 | s LEVER (CASSETTE)                 |
| 422 | 3-374-720-01 | s SPRING (SLIDER LOCK), TORSION    |
| 423 | 3-374-721-02 | s SPRING (SLIDER RETURN), TORSION  |
| 424 | 3-374-722-01 | s SPRING (LID ARM), TORSION        |
| 425 | 3-374-723-01 | s SPRING (CASSETTE LEVER), TORSION |
| 426 | 3-374-734-01 | s GUIDE (CASSETTE RIGHT)           |
| 427 | 3-374-739-01 | s GEAR (JOINT RIGHT)               |
| 428 | 3-388-228-02 | s LEVER (LID UP)                   |
| 429 | 3-561-628-00 | s SPRING, TENSION                  |
| 430 | 3-703-502-11 | s SCREW                            |
| 431 | 3-703-816-31 | s SCREW (M1.4X1.6), SPECIAL HEAD   |
| 432 | 3-904-008-01 | s ROLLER                           |
| 433 | 4-858-478-00 | s SPRING, TENSION                  |
| 434 | 7-627-850-27 | s SCREW, PRECISION +P 1.4X3        |
| 435 | 7-627-850-47 | s SCREW, PRECISION +P 1.4X1.6      |

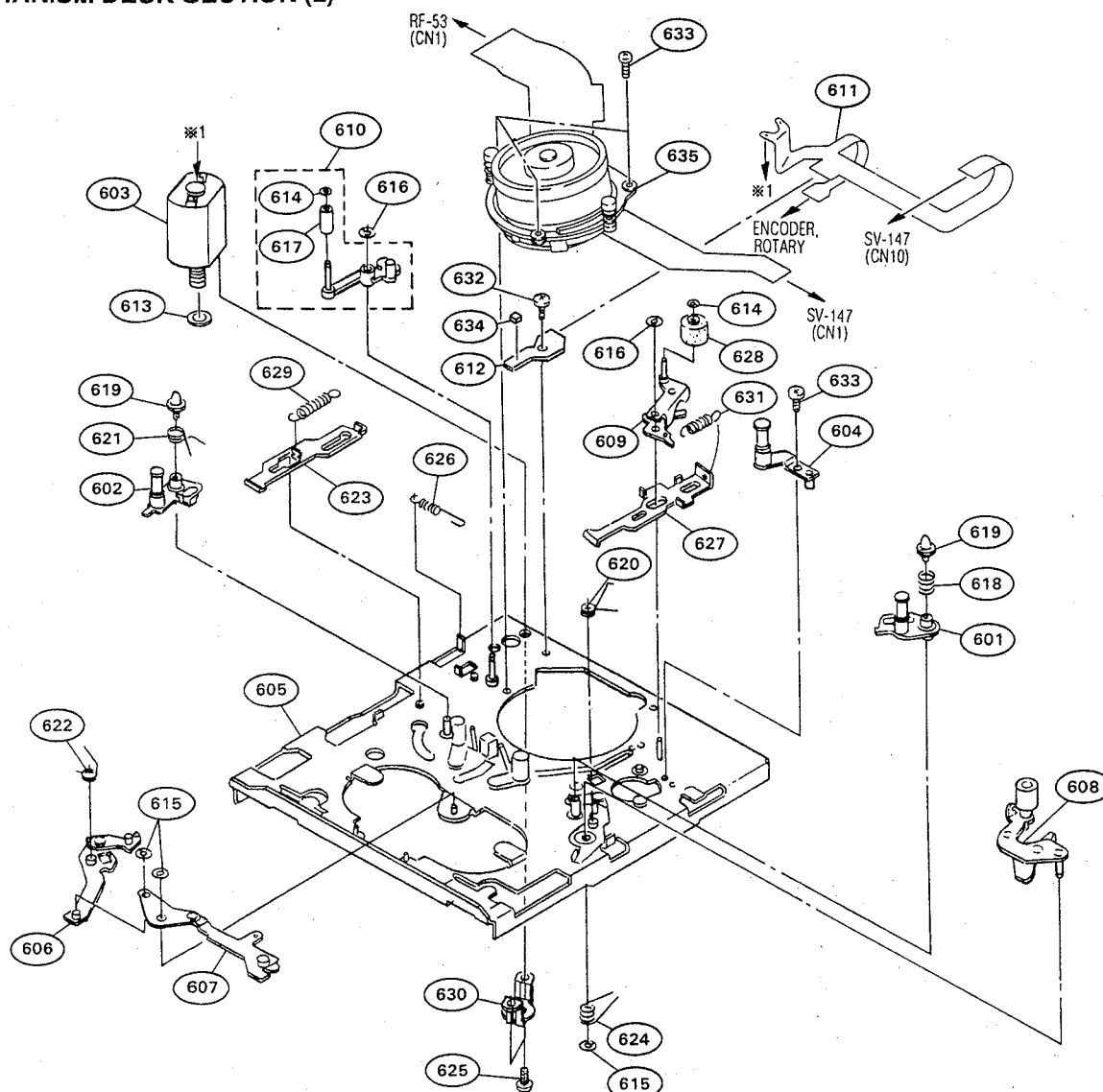
# MECHANISM DECK SECTION (1)



| No. | Part No.     | SP Description                                |
|-----|--------------|---|
| 501 | A-8276-769-A | o MOUNTED CIRCUIT BOARD, REEL FG              |
| 502 | X-3363-984-1 | s ARM ASSY, LID                               |
| 503 | 1-570-771-11 | s SWITCH                                      |
| 504 | 1-572-950-11 | s SWITCH, PUSH                                |
| 505 | 1-572-951-11 | s SWITCH, PUSH                                |
| 506 | 1-642-056-12 | s PRINTED CIRCUIT BOARD, RECOGNI END FLEXIBLE |
| 507 | 1-648-978-11 | s PRINTED CIRCUIT BOARD, REEL FG.DEW FLEXIBLE |
| 508 | 1-648-979-11 | s PRINTED CIRCUIT BOARD, CAPSTAN FLEXIBLE     |
| 509 | 1-698-227-11 | s MOTOR, REEL                                 |
| 510 | 1-809-544-12 | s SENSOR, DEW CONDENSATION                    |

| No. | Part No.     | SP Description                 |
|-----|--------------|--------------------------------|
| 511 | 3-374-654-01 | s COVER (MOTOR)                |
| 512 | 3-374-672-01 | s SPRING, TENSION              |
| 513 | 3-374-673-01 | s BRACKET (SWITCH)             |
| 514 | 3-374-674-01 | s HOLDER (ES)                  |
| 515 | 7-627-553-67 | s SCREW,PRECISION +P 2X5       |
| 516 | 7-627-850-08 | s SCREW,PRECISION +P 1.4X2     |
| 517 | 7-627-850-27 | s SCREW,PRECISION +P 1.4X3     |
| 518 | 8-729-907-25 | s PHOTO TRANSISTOR PT4850F     |
| 519 | 8-759-057-48 | s PHOTO REFLECTOR NJL5803K-F10 |
| 520 | 8-835-329-12 | s MOTOR, DC U-21A              |

## MECHANISM DECK SECTION (2)



No. Part No. SP Description

601 A-8267-743-A s ROLLER ASSY, RG  
 602 A-8267-744-A s ROLLER ASSY, LG  
 603 A-8267-759-A s MOTOR ASSY, DRIVE  
 604 A-8267-761-A s GUIDE ASSY, ROLLER  
 605 X-3363-963-1 o CHASSIS ASSY  
 606 X-3363-965-1 s LEVER ASSY, CAM  
 607 X-3363-966-1 s LEVER ASSY, LR  
 608 X-3363-976-1 s PINCH ROLLER ASSY  
 609 X-3363-983-1 s ARM ASSY, CR  
 610 X-3366-602-1 s TENSION REGULATOR ASSY

611 1-648-976-12 s PRINTED CIRCUIT BOARD,  
 TENTEGI MOTER ENCODER FLEXIBLE  
 612 1-648-982-11 o PRINTED CIRCUIT BOARD, TENREGI  
 613 3-320-354-21 s WASHER  
 614 3-321-393-01 s WASHER, STOPPER  
 615 3-341-752-11 s WASHER, POLYETHYLENE

616 3-341-753-11 s WASHER, POLYETHYLENE  
 617 3-360-866-01 s ROLLER (TENSION REGULATOR)  
 618 3-374-604-01 s SPRING, COMPRESSION  
 619 3-374-605-01 s SHAFT (CASSETTE)  
 620 3-374-606-01 s SPRING (R), TORSION

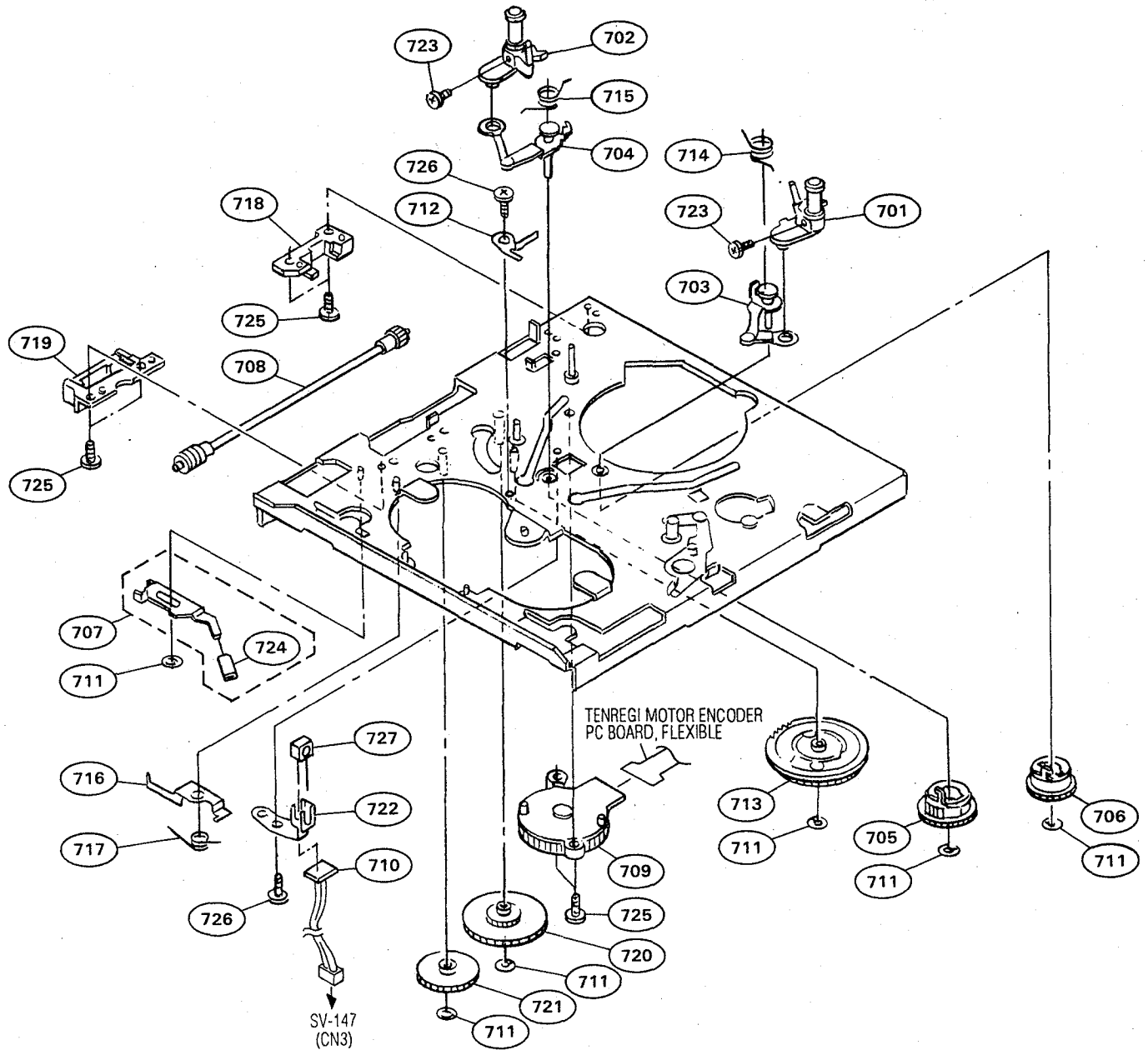
No. Part No. SP Description

621 3-374-608-01 s SPRING (LF), TORSION  
 622 3-374-609-03 s SPRING (L), TORSION  
 623 3-374-610-02 s SLIDER  
 624 3-374-635-01 s SPRING (P), TORSION  
 625 3-374-657-01 s SCREW (M2X2)

626 3-374-662-01 s SPRING, TENSION  
 627 3-374-665-01 s SLIDER, CR  
 628 3-375-727-01 s ROLLER (HC)  
 629 3-375-728-01 s SPRING, TENSION  
 630 3-379-832-01 s RETAINER, THRUST

631 3-570-776-01 s SPRING, TENSION  
 632 7-627-850-08 s SCREW,PRECISION +P 1.4X2  
 633 7-627-850-27 s SCREW,PRECISION +P 1.4X3  
 634 8-719-821-03 s ELEMENT, HALL THS117  
 635 8-848-611-11 s DRUM ASSY DOU-21A-R  
 (For MT-PCM-E7700 P-103,PLAYER)  
 8-848-612-11 s DRUM ASSY DOU-22A-R  
 (For MT-PCM-E7700 R-103,RECORDER)

# MECHANISM DECK SECTION (3)



| No. | Part No.     | SP Description                 |
|-----|--------------|--------------------------------|
| 701 | X-3363-969-1 | s ROLLER ASSY, SLANT GUIDE (T) |
| 702 | X-3363-972-3 | s ROLLER ASSY, SLANT GUIDE (S) |
| 703 | X-3363-974-1 | s ARM (T) ASSY, LOADING        |
| 704 | X-3363-975-1 | s ARM (S) ASSY, LOADING        |
| 705 | X-3363-978-1 | s GEAR (S) ASSY, LOADING       |
| 706 | X-3363-979-3 | s GEAR (T) ASSY, LOADING       |
| 707 | X-3363-980-1 | s PLATE ASSY, SPOOL, REEL      |
| 708 | X-3363-981-1 | s GEAR ASSY, DRIVE             |
| 709 | 1-466-670-21 | s ENCODER, ROTARY              |
| 710 | 1-642-088-11 | o PRINTED CIRCUIT BOARD, GOMA  |
| 711 | 3-341-753-11 | s WASHER, POLYETHYLENE         |
| 712 | 3-374-628-02 | s PLATE, LOAD, PRE             |
| 713 | 3-374-636-01 | s GEAR, CAM                    |
| 714 | 3-374-641-01 | s SPRING (T), TORSION          |
| 715 | 3-374-642-02 | s SPRING (S), TORSION          |

| No. | Part No.     | SP Description                  |
|-----|--------------|---------------------------------|
| 716 | 3-374-645-01 | o RETAINER, SPOOL PLATE         |
| 717 | 3-374-646-01 | s SPRING (SPOOL PLATE), TORSION |
| 718 | 3-374-647-01 | s RETAINER (A), DRIVE SHAFT     |
| 719 | 3-374-648-01 | s RETAINER (B), DRIVE SHAFT     |
| 720 | 3-374-652-01 | s GEAR (M2)                     |
| 721 | 3-374-653-01 | s GEAR (MD WHEEL)               |
| 722 | 3-374-655-01 | s BRACKET (LED)                 |
| 723 | 3-704-246-31 | s SCREW (P1.4X2.5)              |
| 724 | 4-866-397-00 | o CUSHION, LED                  |
| 725 | 7-627-850-27 | s SCREW,PRECISION +P 1.4X3      |
| 726 | 7-627-850-47 | s SCREW,PRECISION +P 1.4X1.6    |
| 727 | 8-719-988-42 | s DIODE GL453S                  |

### 7-3. ELECTRICAL PARTS LIST

Replacements for capacitors and resistors not given in each board parts lists are shown below.  
If a capacitor with the desired working voltage is not found, choose one of higher working voltage.

#### CAPACITOR, CHIP CERAMIC

##### Part No. SP Description

|              |                     |        |     |     |
|--------------|---------------------|--------|-----|-----|
| 1-163-019-00 | s CAP, CHIP CERAMIC | 6800pF | 10% | 50V |
| 1-163-038-00 | s CAP, CHIP CERAMIC | 0.1    |     | 25V |
| 1-163-125-00 | s CAP, CHIP CERAMIC | 220pF  | 5%  | 50V |
| 1-163-127-00 | s CAP, CHIP CERAMIC | 270pF  | 5%  | 50V |
| 1-163-131-00 | s CAP, CHIP CERAMIC | 390pF  | 5%  | 50V |
| 1-163-133-00 | s CAP, CHIP CERAMIC | 470pF  | 5%  | 50V |
| 1-163-227-11 | s CAP, CHIP CERAMIC | 10pF   | 5%  | 50V |
| 1-163-229-11 | s CAP, CHIP CERAMIC | 12pF   | 5%  | 50V |
| 1-163-235-11 | s CAP, CHIP CERAMIC | 22pF   | 5%  | 50V |
| 1-163-239-11 | s CAP, CHIP CERAMIC | 33pF   | 5%  | 50V |
| 1-163-243-11 | s CAP, CHIP CERAMIC | 47pF   | 5%  | 50V |
| 1-163-251-11 | s CAP, CHIP CERAMIC | 100pF  | 5%  | 50V |
| 1-163-257-11 | s CAP, CHIP CERAMIC | 180pF  | 5%  | 50V |
| 1-163-275-11 | s CAP, CHIP CERAMIC | 0.001  | 5%  | 50V |
| 1-163-833-00 | s CAP, CHIP CERAMIC | 0.068  |     | 25V |

#### CAPACITOR, CHIP TANTALUM

##### Part No. SP Description

|              |                      |      |     |      |
|--------------|----------------------|------|-----|------|
| 1-135-073-00 | s CAP, CHIP TANTALUM | 0.33 | 10% | 35V  |
| 1-135-208-11 | s CAP, CHIP TANTALUM | 1    | 20% | 10V  |
| 1-135-217-21 | s CAP, CHIP TANTALUM | 15   | 20% | 6.3V |
| 1-135-227-11 | s CAP, CHIP TANTALUM | 100  | 20% | 6.3V |
| 1-135-259-11 | s CAP, CHIP TANTALUM | 10   | 20% | 6.3V |

#### RESISTOR, CHIP

##### Part No. SP Description

|              |             |      |    |       |
|--------------|-------------|------|----|-------|
| 1-216-001-00 | s RES, CHIP | 10   | 5% | 1/10W |
| 1-216-009-00 | s RES, CHIP | 22   | 5% | 1/10W |
| 1-216-017-00 | s RES, CHIP | 47   | 5% | 1/10W |
| 1-216-021-00 | s RES, CHIP | 68   | 5% | 1/10W |
| 1-216-025-00 | s RES, CHIP | 100  | 5% | 1/10W |
| 1-216-029-00 | s RES, CHIP | 150  | 5% | 1/10W |
| 1-216-033-00 | s RES, CHIP | 220  | 5% | 1/10W |
| 1-216-035-00 | s RES, CHIP | 270  | 5% | 1/10W |
| 1-216-037-00 | s RES, CHIP | 330  | 5% | 1/10W |
| 1-216-039-00 | s RES, CHIP | 390  | 5% | 1/10W |
| 1-216-041-00 | s RES, CHIP | 470  | 5% | 1/10W |
| 1-216-049-00 | s RES, CHIP | 1K   | 5% | 1/10W |
| 1-216-051-00 | s RES, CHIP | 1.2K | 5% | 1/10W |
| 1-216-055-00 | s RES, CHIP | 1.8K | 5% | 1/10W |
| 1-216-057-00 | s RES, CHIP | 2.2K | 5% | 1/10W |
| 1-216-063-00 | s RES, CHIP | 3.9K | 5% | 1/10W |
| 1-216-065-00 | s RES, CHIP | 4.7K | 5% | 1/10W |
| 1-216-071-00 | s RES, CHIP | 8.2K | 5% | 1/10W |
| 1-216-073-00 | s RES, CHIP | 10K  | 5% | 1/10W |
| 1-216-075-00 | s RES, CHIP | 12K  | 5% | 1/10W |
| 1-216-077-00 | s RES, CHIP | 15K  | 5% | 1/10W |
| 1-216-079-00 | s RES, CHIP | 18K  | 5% | 1/10W |
| 1-216-081-00 | s RES, CHIP | 22K  | 5% | 1/10W |
| 1-216-083-00 | s RES, CHIP | 27K  | 5% | 1/10W |
| 1-216-085-00 | s RES, CHIP | 33K  | 5% | 1/10W |
| 1-216-089-91 | s RES, CHIP | 47K  | 5% | 1/10W |
| 1-216-095-00 | s RES, CHIP | 82K  | 5% | 1/10W |
| 1-216-097-00 | s RES, CHIP | 100K | 5% | 1/10W |
| 1-216-103-91 | s RES, CHIP | 180K | 5% | 1/10W |
| 1-216-107-00 | s RES, CHIP | 270K | 5% | 1/10W |
| 1-216-113-00 | s RES, CHIP | 470K | 5% | 1/10W |
| 1-216-121-00 | s RES, CHIP | 1.0M | 5% | 1/10W |
| 1-216-295-00 | s RES, CHIP | 0    | 5% | 1/10W |
| 1-216-308-00 | s RES, CHIP | 4.7  | 5% | 1/10W |

ADA-31 BOARD

Ref. No.

or Q'ty Part No. SP Description

1pc A-8275-317-A o MOUNTED CIRCUIT BOARD, ADA-31  
(This assembly includes the following parts.)

|       |              |                                 |
|-------|--------------|---------------------------------|
| C1    | 1-124-589-11 | s ELECT 47uF 20% 16V            |
| C13   | 1-124-261-00 | s ELECT 10uF 20% 50V            |
| C14   | 1-124-261-00 | s ELECT 10uF 20% 50V            |
| C20   | 1-126-157-11 | s ELECT 10uF 20% 16V            |
| C21   | 1-126-157-11 | s ELECT 10uF 20% 16V            |
| C24   | 1-126-157-11 | s ELECT 10uF 20% 16V            |
| C25   | 1-124-234-00 | s ELECT 22uF 20% 16V            |
| #C101 | 1-163-275-11 | s CERAMIC, CHIP 0.001uF 5% 50V  |
| C102  | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V  |
| C103  | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V  |
| #C104 | 1-163-251-11 | s CERAMIC, CHIP 100pF 5% 50V    |
| #C105 | 1-163-275-11 | s CERAMIC, CHIP 0.001uF 5% 50V  |
| #C107 | 1-163-239-11 | s CERAMIC, CHIP 33pF 5% 50V     |
| C118  | 1-126-096-11 | s ELECT 10uF 20% 35V            |
| C121  | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V  |
| C123  | 1-126-163-11 | s ELECT 4.7uF 20% 50V           |
| C124  | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V |
| C125  | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V |
| #C201 | 1-163-275-11 | s CERAMIC, CHIP 0.001uF 5% 50V  |
| C202  | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V  |
| C203  | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V  |
| #C204 | 1-163-251-11 | s CERAMIC, CHIP 100pF 5% 50V    |
| #C205 | 1-163-275-11 | s CERAMIC, CHIP 0.001uF 5% 50V  |
| #C207 | 1-163-239-11 | s CERAMIC, CHIP 33pF 5% 50V     |
| C218  | 1-126-096-11 | s ELECT 10uF 20% 35V            |
| C221  | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V  |
| C223  | 1-126-163-11 | s ELECT 4.7uF 20% 50V           |
| C224  | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V |
| C225  | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V |
| C309  | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V  |
| C310  | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V |
| #C312 | 1-163-275-11 | s CERAMIC, CHIP 0.001uF 5% 50V  |
| C409  | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V  |
| C410  | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V |
| #C412 | 1-163-275-11 | s CERAMIC, CHIP 0.001uF 5% 50V  |
| C501  | 1-126-096-11 | s ELECT 10uF 20% 35V            |
| C503  | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V  |
| C504  | 1-124-282-00 | s ELECT, NONPOLAR 22uF 20% 25V  |
| C505  | 1-126-096-11 | s ELECT 10uF 20% 35V            |
| C507  | 1-126-163-11 | s ELECT 4.7uF 20% 50V           |
| C508  | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V |
| C510  | 1-126-096-11 | s ELECT 10uF 20% 35V            |
| C511  | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V |
| C514  | 1-124-261-00 | s ELECT 10uF 20% 50V            |
| #C515 | 1-124-261-00 | s ELECT 10uF 20% 50V            |
| C517  | 1-124-261-00 | s ELECT 10uF 20% 50V            |
| C519  | 1-124-261-00 | s ELECT 10uF 20% 50V            |
| C521  | 1-126-096-11 | s ELECT 10uF 20% 35V            |
| C522  | 1-164-489-11 | s CERAMIC, CHIP 0.22uF 10% 16V  |
| C523  | 1-164-232-11 | s CERAMIC, CHIP 0.01uF 10% 100V |
| C524  | 1-126-157-11 | s ELECT 10uF 20% 16V            |
| C602  | 1-126-096-11 | s ELECT 10uF 20% 35V            |
| C603  | 1-126-096-11 | s ELECT 10uF 20% 35V            |
| C604  | 1-126-096-11 | s ELECT 10uF 20% 35V            |
| C605  | 1-126-096-11 | s ELECT 10uF 20% 35V            |
| C702  | 1-126-923-11 | s ELECT 220uF 20% 10V           |

NOTE: Please see page 7-10 for the parts that are not listed in the parts list.

(ADA-31 BOARD)

Ref. No.

or Q'ty Part No. SP Description

|       |              |                         |
|-------|--------------|-------------------------|
| C802  | 1-126-096-11 | s ELECT 10uF 20% 35V    |
| C804  | 1-124-589-11 | s ELECT 47uF 20% 16V    |
| C805  | 1-124-589-11 | s ELECT 47uF 20% 16V    |
| C807  | 1-126-096-11 | s ELECT 10uF 20% 35V    |
| C809  | 1-124-589-11 | s ELECT 47uF 20% 16V    |
| C810  | 1-124-589-11 | s ELECT 47uF 20% 16V    |
| C930  | 1-126-096-11 | s ELECT 10uF 20% 35V    |
| C931  | 1-126-096-11 | s ELECT 10uF 20% 35V    |
| CN1   | 1-564-005-11 | o CONNECTOR 6P, MALE    |
| CN2   | 1-506-480-11 | s CONNECTOR 15P, MALE   |
| CN3   | 1-506-474-11 | s CONNECTOR 9P, MALE    |
| CN4   | 1-506-469-11 | s CONNECTOR 4P, MALE    |
| CN5   | 1-564-011-11 | o CONNECTOR 12P, MALE   |
| CP501 | 1-466-175-11 | s FILTER UNIT, LOW-PASS |
| D1    | 8-719-028-74 | s DIODE NSQ03A04        |
| D2    | 8-719-028-74 | s DIODE NSQ03A04        |
| D3    | 8-719-028-74 | s DIODE NSQ03A04        |
| D4    | 8-719-028-74 | s DIODE NSQ03A04        |
| D6    | 8-719-941-23 | s DIODE DA204U          |
| D7    | 8-719-941-23 | s DIODE DA204U          |
| D8    | 8-719-210-33 | s DIODE EC10DS2         |
| D9    | 8-719-941-23 | s DIODE DA204U          |
| D10   | 8-719-941-23 | s DIODE DA204U          |
| D11   | 8-719-941-23 | s DIODE DA204U          |
| D12   | 8-719-941-23 | s DIODE DA204U          |
| D101  | 8-719-941-23 | s DIODE DA204U          |
| D102  | 8-719-941-23 | s DIODE DA204U          |
| D103  | 8-719-941-23 | s DIODE DA204U          |
| D104  | 8-719-941-23 | s DIODE DA204U          |
| D105  | 8-719-941-23 | s DIODE DA204U          |
| D106  | 8-719-941-23 | s DIODE DA204U          |
| D201  | 8-719-941-23 | s DIODE DA204U          |
| D202  | 8-719-941-23 | s DIODE DA204U          |
| D203  | 8-719-941-23 | s DIODE DA204U          |
| D204  | 8-719-941-23 | s DIODE DA204U          |
| D206  | 8-719-941-23 | s DIODE DA204U          |
| D207  | 8-719-941-23 | s DIODE DA204U          |
| D501  | 8-719-941-23 | s DIODE DA204U          |
| D502  | 8-719-941-23 | s DIODE DA204U          |
| D503  | 8-719-941-23 | s DIODE DA204U          |
| D504  | 8-719-941-23 | s DIODE DA204U          |
| D801  | 8-719-210-33 | s DIODE EC10DS2         |
| D901  | 8-719-210-33 | s DIODE EC10DS2         |
| D902  | 8-719-210-33 | s DIODE EC10DS2         |
| IC1   | 8-759-999-09 | s IC CS5326-KP          |
| IC2   | 8-759-701-84 | s IC NJM7905FA          |
| IC3   | 8-759-701-75 | s IC NJM7805FA          |
| IC4   | 8-759-701-59 | s IC NJM78M09FA         |
| IC5   | 8-759-701-87 | s IC NJM7909FA          |
| IC9   | 8-759-925-90 | s IC SN74HC74NS         |
| IC10  | 8-759-925-90 | s IC SN74HC74NS         |
| IC11  | 8-759-927-46 | s IC SN74HC00NS         |
| IC101 | 8-759-208-09 | s IC TC4052BFHB         |
| IC102 | 8-759-745-64 | s IC NJM4560M           |
| IC103 | 8-759-234-77 | s IC TC4S66F            |
| IC104 | 8-759-745-64 | s IC NJM4560M           |
| IC105 | 8-759-745-64 | s IC NJM4560M           |
| IC106 | 8-759-234-77 | s IC TC4S66F            |

NOTE: For # marked in the parts list, refer to "SECTION 8 CHANGED PARTS".

## (ADA-31 BOARD)

| Ref. No.<br>or Q'ty | Part No. | SP Description |
|---------------------|----------|----------------|
|---------------------|----------|----------------|

|       |              |                 |
|-------|--------------|-----------------|
| IC201 | 8-759-208-09 | s IC TC4052BFHB |
| IC202 | 8-759-745-64 | s IC NJM4560M   |
| IC203 | 8-759-234-77 | s IC TC4S66F    |
| IC204 | 8-759-745-64 | s IC NJM4560M   |
| IC205 | 8-759-745-64 | s IC NJM4560M   |

|       |              |               |
|-------|--------------|---------------|
| IC206 | 8-759-234-77 | s IC TC4S66F  |
| IC301 | 8-759-998-22 | s IC PCM56P   |
| IC302 | 8-759-745-64 | s IC NJM4560M |
| IC303 | 8-759-234-77 | s IC TC4S66F  |
| IC401 | 8-759-998-22 | s IC PCM56P   |

|       |              |                 |
|-------|--------------|-----------------|
| IC402 | 8-759-745-64 | s IC NJM4560M   |
| IC403 | 8-759-234-77 | s IC TC4S66F    |
| IC501 | 8-759-700-45 | s IC NJM4556M-A |
| IC502 | 8-759-745-64 | s IC NJM4560M   |
| IC503 | 8-759-701-02 | s IC NJM2073M   |

|       |              |                  |
|-------|--------------|------------------|
| IC701 | 8-759-973-71 | s IC TL7705CPS-B |
| IC901 | 8-759-234-77 | s IC TC4S66F     |
| IC902 | 8-759-234-77 | s IC TC4S66F     |

|      |              |                  |
|------|--------------|------------------|
| L4   | 1-410-482-31 | s INDUCTOR 100uH |
| L5   | 1-410-482-31 | s INDUCTOR 100uH |
| L6   | 1-410-482-31 | s INDUCTOR 100uH |
| L502 | 1-410-482-31 | s INDUCTOR 100uH |
| L503 | 1-410-482-31 | s INDUCTOR 100uH |

|      |              |                 |
|------|--------------|-----------------|
| L801 | 1-412-533-21 | s INDUCTOR 47UH |
| L802 | 1-412-533-21 | s INDUCTOR 47UH |

|      |              |                       |
|------|--------------|-----------------------|
| Q4   | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q501 | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q502 | 8-729-901-00 | s TRANSISTOR DTC124EK |
| Q503 | 8-729-140-98 | s TRANSISTOR 2SD773-3 |
| Q504 | 8-729-901-05 | s TRANSISTOR DTA124EK |

|      |              |                       |
|------|--------------|-----------------------|
| Q505 | 8-729-901-00 | s TRANSISTOR DTC124EK |
| Q801 | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q802 | 8-729-901-00 | s TRANSISTOR DTC124EK |
| Q803 | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q804 | 8-729-901-00 | s TRANSISTOR DTC124EK |

|      |              |                       |
|------|--------------|-----------------------|
| Q805 | 8-729-901-00 | s TRANSISTOR DTC124EK |
| Q806 | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q807 | 8-729-901-05 | s TRANSISTOR DTA124EK |
| Q808 | 8-729-901-00 | s TRANSISTOR DTC124EK |
| Q809 | 8-729-140-98 | s TRANSISTOR 2SD773-3 |

|       |              |                       |
|-------|--------------|-----------------------|
| #Q901 | 8-729-901-00 | s TRANSISTOR DTC124EK |
| #Q902 | 8-729-901-05 | s TRANSISTOR DTA124EK |

|       |              |                             |
|-------|--------------|-----------------------------|
| #R12  | 1-216-103-91 | s METAL, CHIP 180K 5% 1/10W |
| #R13  | 1-216-295-00 | s METAL, CHIP 0 5% 1/10W    |
| #R137 | 1-216-107-00 | s METAL, CHIP 270K 5% 1/10W |
| #R144 | 1-216-113-00 | s METAL, CHIP 470K 5% 1/10W |
| #R146 | 1-216-121-00 | s METAL, CHIP 1.0M 5% 1/10W |

|       |              |                             |
|-------|--------------|-----------------------------|
| #R153 | 1-216-097-00 | s METAL, CHIP 100K 5% 1/10W |
| #R237 | 1-216-107-00 | s METAL, CHIP 270K 5% 1/10W |
| #R244 | 1-216-113-00 | s METAL, CHIP 470K 5% 1/10W |
| #R246 | 1-216-121-00 | s METAL, CHIP 1.0M 5% 1/10W |
| #R253 | 1-216-097-00 | s METAL, CHIP 100K 5% 1/10W |

|       |              |                            |
|-------|--------------|----------------------------|
| #R414 | 1-216-073-00 | s METAL, CHIP 10K 5% 1/10W |
| #R513 | 1-216-025-00 | s METAL, CHIP 100 5% 1/10W |
| #R514 | 1-216-025-00 | s METAL, CHIP 100 5% 1/10W |
| #R903 | 1-216-295-00 | s METAL, CHIP 0 5% 1/10W   |
| #R904 | 1-216-295-00 | s METAL, CHIP 0 5% 1/10W   |

NOTE: Please see page 7-10 for the parts that are not listed in the parts list.

## (ADA-31 BOARD)

| Ref. No.<br>or Q'ty | Part No. | SP Description |
|---------------------|----------|----------------|
|---------------------|----------|----------------|

|       |              |                             |
|-------|--------------|-----------------------------|
| #R905 | 1-216-097-00 | s METAL, CHIP 100K 5% 1/10W |
|-------|--------------|-----------------------------|

|        |              |                        |
|--------|--------------|------------------------|
| RV101  | 1-241-631-11 | s RES, ADJ CARBON 22K  |
| RV201  | 1-241-631-11 | s RES, ADJ CARBON 22K  |
| RV301  | 1-241-630-11 | s RES, ADJ CARBON 10K  |
| RV401  | 1-241-630-11 | s RES, ADJ CARBON 10K  |
| #RV901 | 1-241-628-11 | s RES, ADJ CARBON 2.2K |

|        |              |                        |
|--------|--------------|------------------------|
| #RV902 | 1-241-628-11 | s RES, ADJ CARBON 2.2K |
|--------|--------------|------------------------|

|       |              |         |
|-------|--------------|---------|
| RY501 | 1-515-716-11 | s RELAY |
| RY502 | 1-515-716-11 | s RELAY |
| RY801 | 1-515-716-11 | s RELAY |

NOTE: For # marked in the parts list, refer to "SECTION 8 CHANGED PARTS".



-----  
CP-233A BOARD (For UC, EK)  
-----

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-076-11 | o PRINTED CIRCUIT BOARD, CP-233 |
| C1                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C2                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C4                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C5                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| CN1                 | 1-564-005-11 | o CONNECTOR 6P, MALE            |
| CN2                 | 1-565-284-11 | o CONNECTOR, XLR 3P, FEMALE     |
| CN3                 | 1-565-284-11 | o CONNECTOR, XLR 3P, FEMALE     |
| CN4                 | 1-565-284-11 | o CONNECTOR, XLR 3P, FEMALE     |
| CN5                 | 1-564-002-11 | s CONNECTOR 3P, MALE            |
| FB1                 | 1-412-694-11 | s INDUCTOR, BEED                |
| FB2                 | 1-412-694-11 | s INDUCTOR, BEED                |
| FB11                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB12                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB13                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB14                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB15                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB16                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB21                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB22                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB23                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB24                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB25                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB26                | 1-412-694-11 | s INDUCTOR, BEED                |

-----  
CP-233B BOARD (For J)  
-----

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-076-11 | o PRINTED CIRCUIT BOARD, CP-233 |
| C1                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C2                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C4                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C5                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| CN1                 | 1-564-005-11 | o CONNECTOR 6P, MALE            |
| CN2                 | 1-565-283-11 | o CONNECTOR, XLR 3P, MALE       |
| CN3                 | 1-565-283-11 | o CONNECTOR, XLR 3P, MALE       |
| CN4                 | 1-565-284-11 | o CONNECTOR, XLR 3P, FEMALE     |
| CN5                 | 1-564-002-11 | s CONNECTOR 3P, MALE            |
| FB1                 | 1-412-694-11 | s INDUCTOR, BEED                |
| FB2                 | 1-412-694-11 | s INDUCTOR, BEED                |
| FB11                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB12                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB13                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB14                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB15                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB16                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB21                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB22                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB23                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB24                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB25                | 1-412-694-11 | s INDUCTOR, BEED                |
| FB26                | 1-412-694-11 | s INDUCTOR, BEED                |

-----  
CP-234 BOARD  
-----

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-077-11 | o PRINTED CIRCUIT BOARD, CP-234 |
| C1                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| C2                  | 1-164-182-11 | s CERAMIC, CHIP 3300pF 10% 100V |
| CN1                 | 1-506-469-11 | s CONNECTOR 4P, MALE            |
| FB1                 | 1-412-694-11 | s INDUCTOR, BEED                |
| FB2                 | 1-412-694-11 | s INDUCTOR, BEED                |
| J1                  | 1-562-999-41 | s JACK, PIN 2P                  |

NOTE: Please see page 7-10 for the parts that are not listed in the parts list.

NOTE: For # marked in the parts list, refer to "SECTION 8 CHANGED PARTS".

HP-57 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| 1pc                 | 1-650-075-11 | o PRINTED CIRCUIT BOARD, HP-57 |
| 1pc                 | 3-678-376-01 | o BRACKET, JACK                |
| 1pc                 | 7-682-903-01 | s SCREW +PWH 3X5               |
| FB1                 | 1-412-694-11 | s INDUCTOR, BEED               |
| FB2                 | 1-412-694-11 | s INDUCTOR, BEED               |
| FB3                 | 1-412-694-11 | s INDUCTOR, BEED               |
| FB4                 | 1-412-694-11 | s INDUCTOR, BEED               |
| J1                  | 1-569-190-11 | s JACK (LARGE TYPE)            |
| RV1                 | 1-241-331-11 | s RES, VAR CARBON 10K/10K      |

KY-247 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-074-11 | o PRINTED CIRCUIT BOARD, KY-247 |
| 1pc                 | 4-928-315-81 | s KEY TOP                       |
| S1                  | 1-571-655-21 | s SWITCH, PUSH(WITH LED)        |

LED-160 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                   |
|---------------------|--------------|----------------------------------|
| 1pc                 | 1-650-080-11 | o PRINTED CIRCUIT BOARD, LED-160 |
| D1                  | 8-719-041-51 | s LED GL1EG111, YELLOWISH GREEN  |

REEL FG BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description  |
|---------------------|--------------|---|
| 1pc                 | A-8276-769-A | o MOUNTED CIRCUIT BOARD, REEL FG<br>(This assembly includes the following parts.) |
| 1pc                 | 1-648-983-11 | o PRINTED CIRCUIT BOARD, REEL FG  |
| C1                  | 1-164-505-11 | s CERAMIC 2.2uF 16V   |

RF-53 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                   |
|---------------------|--------------|----------------------------------|
| C102                | 1-164-845-11 | s CERAMIC 5PF 5% 16V             |
| C103                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C104                | 1-164-845-11 | s CERAMIC 5PF 5% 16V             |
| C105                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C107                | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C108                | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C111                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C112                | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V      |
| C113                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C114                | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V      |
| C115                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C116                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C117                | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C118                | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C119                | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C120                | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| #C121               | 1-135-259-11 | s TANTALUM, CHIP 10uF 20% 6.3V   |
| C122                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C123                | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C124                | 1-164-940-11 | s CERAMIC 0.0033uF 10% 16V       |
| C125                | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C126                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C128                | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C129                | 1-164-935-11 | s CERAMIC 470PF 10% 16V          |
| C130                | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C131                | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C132                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C134                | 1-162-968-11 | s CERAMIC, CHIP 0.0047uF 10% 50V |
| C136                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C137                | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C138                | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C139                | 1-162-964-11 | s CERAMIC, CHIP 0.001uF 10% 50V  |
| C202                | 1-164-845-11 | s CERAMIC 5PF 5% 16V             |
| C203                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C204                | 1-164-845-11 | s CERAMIC 5PF 5% 16V             |
| C205                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C207                | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C208                | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C211                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C212                | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V      |
| C213                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C214                | 1-162-921-11 | s CERAMIC, CHIP 33PF 5% 50V      |
| C215                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C216                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C217                | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C218                | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C219                | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C220                | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| #C221               | 1-135-259-11 | s TANTALUM, CHIP 10uF 20% 6.3V   |
| C222                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C223                | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C224                | 1-164-940-11 | s CERAMIC 0.0033uF 10% 16V       |
| C225                | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C226                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |
| C228                | 1-164-937-11 | s CERAMIC 0.001uF 10% 16V        |
| C229                | 1-164-935-11 | s CERAMIC 470PF 10% 16V          |
| C230                | 1-164-882-11 | s CERAMIC 220PF 5% 16V           |
| C231                | 1-164-874-11 | s CERAMIC 100PF 5% 16V           |
| C232                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V    |

NOTE: Please see page 7-10 for the parts that are not listed in the parts list.

NOTE: For # marked in the parts list, refer to "SECTION 8 CHANGED PARTS".

## (RF-53 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| C234                | 1-162-968-11 | s CERAMIC, CHIP 0.004uF 10% 50V |
| C236                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V   |
| C237                | 1-164-882-11 | s CERAMIC 220PF 5% 16V          |
| C238                | 1-164-882-11 | s CERAMIC 220PF 5% 16V          |
| C239                | 1-162-964-11 | s CERAMIC, CHIP 0.001uF 10% 50V |
| C301                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V   |
| C303                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V   |
| C304                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V   |
| C307                | 1-164-004-11 | s CERAMIC, CHIP 0.1uF 10% 25V   |
| CN1                 | 1-566-531-11 | s CONNECTOR, FPC (ZIF) 15P      |
| CN2                 | 1-565-882-11 | o CONNECTOR, 10P, MALE          |
| CN3                 | 1-566-534-11 | s CONNECTOR, FPC (ZIF) 18P      |
| IC101               | 8-752-039-01 | s IC CXA1364R                   |
| IC201               | 8-752-039-01 | s IC CXA1364R                   |
| IC301               | 8-759-064-36 | s IC MB88346BPFV                |
| L101                | 1-410-381-11 | s INDUCTOR CHIP 10UH            |
| L201                | 1-410-381-11 | s INDUCTOR CHIP 10UH            |
| L301                | 1-410-381-11 | s INDUCTOR CHIP 10UH            |
| Q101                | 8-729-102-08 | s TRANSISTOR 2SC2223-T1F14      |
| Q102                | 8-729-102-08 | s TRANSISTOR 2SC2223-T1F14      |
| Q103                | 8-729-901-00 | s TRANSISTOR DTC124EK           |
| Q104                | 8-729-230-49 | s TRANSISTOR 2SC2712-YG         |
| Q105                | 8-729-230-49 | s TRANSISTOR 2SC2712-YG         |
| Q106                | 8-729-216-21 | s TRANSISTOR 2SA1162-Y          |
| Q107                | 8-729-230-49 | s TRANSISTOR 2SC2712-YG         |
| Q108                | 8-729-216-21 | s TRANSISTOR 2SA1162-Y          |
| Q109                | 8-729-230-49 | s TRANSISTOR 2SC2712-YG         |
| Q110                | 8-729-230-49 | s TRANSISTOR 2SC2712-YG         |
| Q201                | 8-729-102-08 | s TRANSISTOR 2SC2223-T1F14      |
| Q202                | 8-729-102-08 | s TRANSISTOR 2SC2223-T1F14      |
| Q203                | 8-729-901-00 | s TRANSISTOR DTC124EK           |
| Q204                | 8-729-230-49 | s TRANSISTOR 2SC2712-YG         |
| Q205                | 8-729-230-49 | s TRANSISTOR 2SC2712-YG         |
| Q206                | 8-729-216-21 | s TRANSISTOR 2SA1162-Y          |
| Q207                | 8-729-230-49 | s TRANSISTOR 2SC2712-YG         |
| Q208                | 8-729-216-21 | s TRANSISTOR 2SA1162-Y          |
| Q209                | 8-729-230-49 | s TRANSISTOR 2SC2712-YG         |
| Q210                | 8-729-230-49 | s TRANSISTOR 2SC2712-YG         |
| R101                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W      |
| R102                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W       |
| R103                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W       |
| R104                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W      |
| R105                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W      |
| R106                | 1-216-812-11 | s METAL, CHIP 180 5% 1/16W      |
| R107                | 1-216-812-11 | s METAL, CHIP 180 5% 1/16W      |
| R108                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W      |
| R109                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W      |
| R110                | 1-218-973-11 | s METAL 27K 5% 1/16W            |
| R111                | 1-218-967-11 | s METAL 15K 5% 1/16W            |
| R112                | 1-218-967-11 | s METAL 15K 5% 1/16W            |
| R113                | 1-218-990-11 | s METAL 0 5% 1/16W              |
| R114                | 1-218-973-11 | s METAL 47K 5% 1/16W            |
| R115                | 1-218-990-11 | s METAL 0 5% 1/16W              |
| R116                | 1-218-967-11 | s METAL 15K 5% 1/16W            |
| R117                | 1-218-967-11 | s METAL 15K 5% 1/16W            |
| R118                | 1-218-952-11 | s METAL 820 5% 1/16W            |
| R119                | 1-218-961-11 | s METAL 4.7K 5% 1/16W           |
| R120                | 1-220-184-81 | s METAL 1.3K 5% 16W             |

NOTE: Please see page 7-10 for the parts that are not listed in the parts list.

## (RF-53 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description              |
|---------------------|--------------|-----------------------------|
| R121                | 1-218-961-11 | s METAL 4.7K 5% 1/16W       |
| R122                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R123                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R124                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R125                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R126                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R127                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R128                | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R129                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R130                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R131                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R132                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R133                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R134                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R135                | 1-216-791-11 | s METAL, CHIP 3.3 5% 1/16W  |
| R136                | 1-216-791-11 | s METAL, CHIP 3.3 5% 1/16W  |
| R137                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R138                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R139                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R140                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R201                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R202                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R203                | 1-216-797-11 | s METAL, CHIP 10 5% 1/16W   |
| R204                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W  |
| R205                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R206                | 1-216-812-11 | s METAL, CHIP 180 5% 1/16W  |
| R207                | 1-216-812-11 | s METAL, CHIP 180 5% 1/16W  |
| R208                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R209                | 1-216-834-11 | s METAL, CHIP 12K 5% 1/16W  |
| R210                | 1-218-973-11 | s METAL 47K 5% 1/16W        |
| R211                | 1-218-967-11 | s METAL 15K 5% 1/16W        |
| R212                | 1-218-967-11 | s METAL 15K 5% 1/16W        |
| R213                | 1-218-990-11 | s METAL 0 5% 1/16W          |
| R214                | 1-218-973-11 | s METAL 47K 5% 1/16W        |
| R215                | 1-218-990-11 | s METAL 0 5% 1/16W          |
| R216                | 1-218-967-11 | s METAL 15K 5% 1/16W        |
| R217                | 1-218-967-11 | s METAL 15K 5% 1/16W        |
| R218                | 1-218-952-11 | s METAL 820 5% 1/16W        |
| R219                | 1-218-961-11 | s METAL 4.7K 5% 1/16W       |
| R220                | 1-220-184-81 | s METAL 1.3K 5% 16W         |
| R221                | 1-218-961-11 | s METAL 4.7K 5% 1/16W       |
| R222                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R223                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R224                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R225                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R226                | 1-218-968-11 | s METAL 18K 5% 1/16W        |
| R227                | 1-220-193-81 | s METAL 7.5K 5% 16W         |
| R228                | 1-216-835-11 | s METAL, CHIP 15K 5% 1/16W  |
| R229                | 1-216-833-11 | s METAL, CHIP 10K 5% 1/16W  |
| R230                | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W  |
| R231                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R232                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W   |
| R233                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R234                | 1-216-830-11 | s METAL, CHIP 5.6K 5% 1/16W |
| R235                | 1-216-791-11 | s METAL, CHIP 3.3 5% 1/16W  |
| R236                | 1-216-791-11 | s METAL, CHIP 3.3 5% 1/16W  |
| R237                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R238                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |
| R239                | 1-216-827-11 | s METAL, CHIP 3.3K 5% 1/16W |

NOTE: For # marked in the parts list, refer to "SECTION 8 CHANGED PARTS".

## (RF-53 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description             |
|---------------------|--------------|----------------------------|
| R240                | 1-216-821-11 | s METAL, CHIP 1K 5% 1/16W  |
| R301                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W |
| R302                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W |
| R303                | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W |

## SSP-8 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description  |
|---------------------|--------------|---|
| 1pc                 | A-8275-316-A | o MOUNTED CIRCUIT BOARD, SSP-8<br>(This assembly includes the following parts.) |
| 1pc                 | 1-563-180-11 | o HOUSING, 6P   |
| 3pcs                | 4-924-029-11 | s WASHER  |
| BT101               | 1-528-229-11 | o BATTERY, LITHIUM CR-2450  |
| BZ101               | 1-529-025-00 | s BUZZER  |
| C102                | 1-136-165-00 | s FILM 0.1uF 5% 50V   |
| C104                | 1-126-157-11 | s ELECT 10uF 20% 16V  |
| C113                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C118                | 1-125-447-11 | s DOUBLE LAYERS 1FARAD 5.5V   |
| C119                | 1-125-447-11 | s DOUBLE LAYERS 1FARAD 5.5V   |
| C136                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C137                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C139                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C140                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C156                | 1-126-157-11 | s ELECT 10uF 20% 16V  |
| C162                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C164                | 1-126-940-11 | s ELECT 330uF 20% 16V   |
| #C175               | 1-163-133-00 | s CERAMIC, CHIP 470pF 5% 50V  |
| #C176               | 1-163-133-00 | s CERAMIC, CHIP 470pF 5% 50V  |
| #C177               | 1-163-133-00 | s CERAMIC, CHIP 470pF 5% 50V  |
| #C178               | 1-163-133-00 | s CERAMIC, CHIP 470pF 5% 50V  |
| #C179               | 1-163-133-00 | s CERAMIC, CHIP 470pF 5% 50V  |
| #C180               | 1-163-133-00 | s CERAMIC, CHIP 470pF 5% 50V  |
| #C181               | 1-163-133-00 | s CERAMIC, CHIP 470pF 5% 50V  |
| #C182               | 1-163-133-00 | s CERAMIC, CHIP 470pF 5% 50V  |
| #C183               | 1-163-133-00 | s CERAMIC, CHIP 470pF 5% 50V  |
| #C184               | 1-163-133-00 | s CERAMIC, CHIP 470pF 5% 50V  |
| #C185               | 1-163-133-00 | s CERAMIC, CHIP 470pF 5% 50V  |
| C305                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C323                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C505                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C526                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C701                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C702                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C703                | 1-126-940-11 | s ELECT 330uF 20% 16V   |
| C704                | 1-126-940-11 | s ELECT 330uF 20% 16V   |
| C705                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C706                | 1-126-157-11 | s ELECT 10uF 20% 16V  |
| C707                | 1-126-160-11 | s ELECT 1uF 20% 50V   |
| C708                | 1-136-169-00 | s MYLAR 0.22uF 5% 50V   |
| C709                | 1-136-169-00 | s MYLAR 0.22uF 5% 50V   |
| C713                | 1-136-177-00 | s FILM 1uF 5% 50V   |
| C714                | 1-126-157-11 | s ELECT 10uF 20% 16V  |
| C715                | 1-164-346-11 | s CERAMIC 1uF 16V   |
| C721                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C724                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C728                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| #C729               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V   |
| C733                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C736                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C738                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C742                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C746                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| C751                | 1-128-057-11 | s ELECT 330uF 20% 6.3V  |
| #C765               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V   |

NOTE: Please see page 7-10 for the parts that are not listed in the parts list.

NOTE: For # marked in the parts list, refer to "SECTION 8 CHANGED PARTS".

## (SSP-8 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description            |
|---------------------|--------------|---------------------------|
| C766                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| #C767               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| #C768               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| #C769               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| #C770               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| #C771               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| #C772               | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| #C773               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| #C774               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| #C775               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| #C776               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| #C777               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| #C778               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| C902                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C904                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C908                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C910                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C912                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C914                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C916                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C918                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C922                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C924                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C926                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| C928                | 1-128-057-11 | s ELECT 330uF 20% 6.3V    |
| #C935               | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V |
| CN102               | 1-506-472-11 | s CONNECTOR 7P, MALE      |
| CN103               | 1-506-683-11 | s CONNECTOR, PS 16P, MALE |
| CN104               | 1-564-001-11 | o CONNECTOR 2P, MALE      |
| CN302               | 1-506-480-11 | s CONNECTOR 15P, MALE     |
| CN701               | 1-508-797-00 | o PIN, CONNECTOR 4P       |
| CN702               | 1-508-797-00 | o PIN, CONNECTOR 4P       |
| CN703               | 1-508-797-00 | o PIN, CONNECTOR 4P       |
| CN706               | 1-506-468-11 | s CONNECTOR 3P, MALE      |
| CN709               | 1-506-474-11 | s CONNECTOR 9P, MALE      |
| CN712               | 1-506-480-11 | s CONNECTOR 15P, MALE     |
| CNI103              | 1-540-080-11 | s SOCKET, IC (IC113) 68P  |
| #CNI112             | 1-526-662-21 | o SOCKET, IC 40P          |
| CNI301              | 1-540-080-11 | s SOCKET, IC (IC113) 68P  |
| #CNI307             | 1-526-662-21 | o SOCKET, IC 40P          |
| CNI501              | 1-540-080-11 | s SOCKET, IC (IC113) 68P  |
| #CNI509             | 1-526-662-21 | o SOCKET, IC 40P          |
| CP101               | 1-577-171-11 | s CRYSTAL 16.00MHz        |
| CP102               | 1-415-502-11 | s DELAY LINE 100ns        |
| CP701               | 1-760-149-21 | s CRYSTAL 49.1520MHz      |
| CP702               | 1-760-148-21 | s CRYSTAL 37.6320MHz      |
| D101                | 8-719-028-74 | s DIODE NSQ03A04          |
| D102                | 8-719-028-74 | s DIODE NSQ03A04          |
| D103                | 8-719-028-74 | s DIODE NSQ03A04          |
| D104                | 8-719-028-74 | s DIODE NSQ03A04          |
| D105                | 8-719-028-74 | s DIODE NSQ03A04          |
| D106                | 8-719-989-22 | s LED CL-150R-CD, RED     |
| D107                | 8-719-989-22 | s LED CL-150R-CD, RED     |
| D108                | 8-719-987-41 | s LED CL-150Y-CD, AMBER   |
| D109                | 8-719-987-43 | s LED CL-150PG-CD, GRN    |
| D701                | 8-719-911-19 | s DIODE 1SS119            |
| D702                | 8-719-911-19 | s DIODE 1SS119            |

NOTE: Please see page 7-10 for the parts that are not listed in the parts list.

## (SSP-8 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description           |
|---------------------|--------------|--------------------------|
| D703                | 8-719-911-19 | s DIODE 1SS119           |
| D704                | 8-719-911-19 | s DIODE 1SS119           |
| #D705               | 8-719-941-84 | s DIODE DA204UT106       |
| #D706               | 8-719-911-19 | s DIODE 1SS119           |
| FB701               | 1-412-694-11 | s INDUCTOR BEAD          |
| #FB702              | 1-412-694-11 | s INDUCTOR BEAD          |
| IC101               | 8-759-925-74 | s IC TC74HC04NS          |
| IC102               | 8-759-973-71 | s IC TL7705CPS-B         |
| IC103               | 8-759-151-34 | s IC UPD70216L-10        |
| IC104               | 8-759-170-54 | s IC CXD8830Q            |
| IC105               | 8-759-929-77 | s IC SN74LS03NS          |
| IC106               | 8-752-338-23 | s IC CXK581100TM-10LL    |
| IC107               | 8-752-338-23 | s IC CXK581100TM-10LL    |
| IC108               | 8-759-171-48 | s IC CXD8326Q            |
| IC109               | 8-759-927-46 | s IC SN74HC00NS          |
| IC110               | 8-759-973-43 | s IC MB8421-90LPFQ       |
| IC111               | 8-759-510-88 | s IC MB8431-90LPFQ       |
| IC112               | 8-759-266-56 | o IC 27C240-I112V1.01    |
| IC114               | 8-759-926-06 | s IC SN74HC126NS         |
| IC115               | 8-759-174-34 | s IC ST93CS56M1013TR     |
| IC116               | 8-759-164-72 | s IC UPD71101GD-10-5BB   |
| IC117               | 8-759-922-44 | s IC MSM5832RS           |
| IC118               | 8-759-925-76 | s IC SN74HC08NS          |
| IC119               | 8-759-925-90 | s IC SN74HC74NS          |
| IC120               | 8-759-925-80 | s IC SN74HC14NS          |
| IC121               | 8-759-166-98 | s IC LT1134CS-E1         |
| IC122               | 8-759-926-82 | s IC SN74HC574ANS        |
| IC123               | 8-759-926-82 | s IC SN74HC574ANS        |
| IC124               | 8-759-925-85 | s IC SN74HC32NS          |
| IC125               | 8-759-171-49 | s IC UPD72020GC-8-3B6    |
| IC126               | 8-759-939-28 | s IC CXD1102Q            |
| IC127               | 8-752-337-91 | s IC CXK58257ATM-70LL    |
| IC128               | 8-752-337-91 | s IC CXK58257ATM-70LL    |
| IC129               | 8-759-251-49 | o IC PALCE16V8Q-25JC-VIF |
| IC131               | 8-759-149-10 | s IC UPD4702G            |
| IC132               | 8-759-948-58 | s IC 74F244SJ            |
| IC133               | 8-759-500-05 | s IC MSM6338MS-K         |
| IC134               | 8-759-926-77 | s IC SN74HC541NS         |
| IC135               | 8-759-149-10 | s IC UPD4702G            |
| IC136               | 8-759-149-10 | s IC UPD4702G            |
| IC301               | 8-759-151-34 | s IC UPD70216L-10        |
| IC302               | 8-759-170-54 | s IC CXD8830Q            |
| IC303               | 8-759-926-12 | s IC SN74HC139NS         |
| IC304               | 8-759-925-74 | s IC TC74HC04NS          |
| IC305               | 8-752-337-91 | s IC CXK58257ATM-70LL    |
| IC306               | 8-752-337-91 | s IC CXK58257ATM-70LL    |
| IC307               | 8-759-254-70 | s IC 27C240-P307V1.00    |
| IC308               | 8-759-925-72 | s IC SN74HC02NS          |
| IC309               | 8-759-926-06 | s IC SN74HC126NS         |
| IC310               | 8-759-149-09 | s IC UPD71059GB-10-3B4   |
| IC311               | 8-759-149-07 | s IC UPD71054GB-10-3B4   |
| IC312               | 8-759-925-85 | s IC SN74HC32NS          |
| IC313               | 8-759-154-60 | s IC UPD71055GB-10-3B4   |
| IC314               | 8-759-926-82 | s IC SN74HC574ANS        |
| IC316               | 8-759-051-53 | s IC TD62381F            |
| IC317               | 8-759-170-56 | s IC CXD8828Q            |
| IC318               | 8-759-926-52 | s IC SN74HC257NS         |
| IC319               | 8-759-925-90 | s IC SN74HC74NS          |

NOTE: For # marked in the parts list, refer to "SECTION 8 CHANGED PARTS".

## (SSP-8 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description         |
|---------------------|--------------|------------------------|
| IC501               | 8-759-151-34 | s IC UPD70216L-10      |
| IC502               | 8-759-170-54 | s IC CXD8830Q          |
| IC503               | 8-759-925-82 | s IC SN74HC21NS        |
| IC504               | 8-759-925-74 | s IC TC74HC04NS        |
| IC505               | 8-759-973-43 | s IC MB8421-90LPFQ     |
| IC506               | 8-759-510-88 | s IC MB8431-90LPFQ     |
| IC507               | 8-752-337-91 | s IC CXK58257ATM-70LL  |
| IC508               | 8-752-337-91 | s IC CXK58257ATM-70LL  |
| IC509               | 8-759-254-68 | s IC 27C210A-R509V1.00 |
| IC510               | 8-759-925-72 | s IC SN74HC02NS        |
| IC511               | 8-759-926-06 | s IC SN74HC126NS       |
| IC512               | 8-759-149-09 | s IC UPD71059GB-10-3B4 |
| IC513               | 8-759-925-85 | s IC SN74HC32NS        |
| IC514               | 8-759-149-07 | s IC UPD71054GB-10-3B4 |
| IC515               | 8-759-926-82 | s IC SN74HC574ANS      |
| IC517               | 8-759-170-56 | s IC CXD8828Q          |
| IC701               | 8-759-708-05 | s IC NJM78L05A         |
| IC702               | 8-752-306-51 | s IC CX23065A          |
| IC703               | 8-759-923-65 | s IC AM26LS31CNS       |
| IC704               | 8-759-923-64 | s IC AM26LS32ACNS      |
| IC705               | 8-759-925-74 | s IC TC74HC04NS        |
| IC706               | 8-759-931-43 | s IC SN74LS624NS       |
| IC707               | 8-752-337-91 | s IC CXK58257ATM-70LL  |
| IC708               | 8-752-352-24 | s IC CXD2605R          |
| IC709               | 8-759-243-19 | s IC TC7SU04F          |
| #IC710              | 8-759-926-77 | s IC SN74HC541NS       |
| IC711               | 8-752-337-91 | s IC CXK58257ATM-70LL  |
| IC712               | 8-752-352-24 | s IC CXD2605R          |
| IC713               | 8-759-243-19 | s IC TC7SU04F          |
| IC714               | 8-752-337-91 | s IC CXK58257ATM-70LL  |
| IC715               | 8-752-352-24 | s IC CXD2605R          |
| IC716               | 8-759-243-19 | s IC TC7SU04F          |
| IC717               | 8-759-925-76 | s IC SN74HC08NS        |
| IC718               | 8-759-925-74 | s IC TC74HC04NS        |
| IC719               | 8-759-170-55 | s IC CXD8829Q          |
| IC720               | 8-759-925-90 | s IC SN74HC74NS        |
| IC721               | 8-759-925-90 | s IC SN74HC74NS        |
| IC722               | 8-759-925-90 | s IC SN74HC74NS        |
| IC723               | 8-759-926-24 | s IC SN74HC164NS       |
| IC724               | 8-759-926-24 | s IC SN74HC164NS       |
| IC725               | 8-759-926-24 | s IC SN74HC164NS       |
| IC726               | 8-759-926-24 | s IC SN74HC164NS       |
| IC727               | 8-759-926-24 | s IC SN74HC164NS       |
| IC728               | 8-759-926-26 | s IC SN74HC166NS       |
| IC729               | 8-759-926-26 | s IC SN74HC166NS       |
| IC730               | 8-759-926-26 | s IC SN74HC166NS       |
| IC731               | 8-759-926-26 | s IC SN74HC166NS       |
| #IC733              | 8-759-038-46 | s IC SC7S00F           |
| #IC735              | 8-759-925-90 | s IC SN74HC74ANS       |
| #IC736              | 8-759-927-46 | s IC SN74HC00ANS       |
| #IC737              | 8-759-925-90 | s IC SN74HC74ANS       |
| #IC738              | 8-759-927-46 | s IC SN74HC00ANS       |
| #IC739              | 8-759-927-46 | s IC SN74HC00ANS       |
| #IC740              | 8-759-925-76 | s IC SN74HC08ANS       |
| IC901               | 8-759-254-77 | s IC CXD8864Q          |
| IC902               | 8-759-043:71 | s IC TMS44400-80SD     |
| IC903               | 8-759-043-71 | s IC TMS44400-80SD     |
| IC904               | 8-759-043-71 | s IC TMS44400-80SD     |
| IC905               | 8-759-043-71 | s IC TMS44400-80SD     |

NOTE: Please see page 7-10 for the parts that are not listed in the parts list.

## (SSP-8 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description             |
|---------------------|--------------|----------------------------|
| IC906               | 8-759-254-77 | s IC CXD8864Q              |
| IC907               | 8-759-043-71 | s IC TMS44400-80SD         |
| IC908               | 8-759-043-71 | s IC TMS44400-80SD         |
| IC909               | 8-759-043-71 | s IC TMS44400-80SD         |
| IC910               | 8-759-043-71 | s IC TMS44400-80SD         |
| IC911               | 8-752-343-18 | s IC CXD2704Q              |
| IC912               | 8-752-343-18 | s IC CXD2704Q              |
| IC913               | 8-752-343-18 | s IC CXD2704Q              |
| #IC914              | 8-759-279-59 | s IC EPM7032-WECTL         |
| L701                | 1-410-482-31 | s INDUCTOR 100uH           |
| L702                | 1-410-482-31 | s INDUCTOR 100uH           |
| L703                | 1-410-482-31 | s INDUCTOR 100uH           |
| L704                | 1-410-482-31 | s INDUCTOR 100uH           |
| L705                | 1-412-533-21 | s INDUCTOR 47uH            |
| #L706               | 1-412-533-21 | s INDUCTOR 47uH            |
| ND301               | 8-719-951-37 | s LED LA-301VB, RED        |
| ND501               | 8-719-951-37 | s LED LA-301VB, RED        |
| #R713               | 1-216-025-00 | s METAL, CHIP 100 5% 1/10W |
| #R718               | 1-216-025-00 | s METAL, CHIP 100 5% 1/10W |
| #R725               | 1-216-025-00 | s METAL, CHIP 100 5% 1/10W |
| S102                | 1-692-535-11 | s SWITCH, DI7P 8-CKT       |
| T701                | 1-437-194-21 | s TRANSFORMER, PULSE       |
| X101                | 1-567-862-11 | s CRYSTAL, 4.9152MHZ       |
| X102                | 1-577-110-11 | s CRYSTAL 20MHz            |
| X103                | 1-567-098-00 | s CRYSTAL 32.76800MHz      |
| X301                | 1-577-110-11 | s CRYSTAL 20MHz            |
| X501                | 1-577-110-11 | s CRYSTAL 20MHz            |
| X701                | 1-567-815-11 | s CRYSTAL 22.5792MHz       |

## [DUS-746 BOARD]

Up to Serial No. J:10110, UC:20055, EK:50235

|     |              |                            |
|-----|--------------|----------------------------|
| C1  | 1-163-038-00 | s CERAMIC, CHIP 0.1uF 25V  |
| IC1 | 8-759-279-59 | s IC EPM7032-WECTL         |
| R1  | 1-216-029-00 | s METAL, CHIP 150 5% 1/10W |
| R2  | 1-216-029-00 | s METAL, CHIP 150 5% 1/10W |

## [DUS-757 BOARD]

Up to Serial No. J:10110, UC:20055, EK:50235

|     |              |                  |
|-----|--------------|------------------|
| IC1 | 8-759-925-90 | s IC SN74HC74ANS |
| IC2 | 8-759-927-46 | s IC SN74HC00ANS |

NOTE: For # marked in the parts list, refer to "SECTION 8 CHANGED PARTS".

## SV-147 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description   |
|---------------------|--------------|--|
| 1pc                 | A-8310-133-A | o MOUNTED CIRCUIT BOARD, SV-147<br>(This assembly includes the following parts.) |
| 4pcs                | 3-374-740-01 | s BRACKET, LED   |
| C1                  | 1-164-489-11 | s CERAMIC, CHIP 0.22uF 10% 16V   |
| C5                  | 1-162-969-11 | s CERAMIC, CHIP 0.0068uF 10% 25V   |
| C7                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V   |
| C8                  | 1-164-227-11 | s CERAMIC, CHIP 0.022uF 10% 25V  |
| C9                  | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V   |
| C10                 | 1-162-965-11 | s CERAMIC, CHIP 0.0015uF 10% 50V   |
| C11                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C13                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C14                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C15                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C20                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C21                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C22                 | 1-162-965-11 | s CERAMIC, CHIP 0.0015uF 10% 50V   |
| C23                 | 1-162-965-11 | s CERAMIC, CHIP 0.0015uF 10% 50V   |
| C24                 | 1-164-227-11 | s CERAMIC, CHIP 0.022uF 10% 25V  |
| C25                 | 1-164-227-11 | s CERAMIC, CHIP 0.022uF 10% 25V  |
| C26                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C27                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V   |
| C28                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C29                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V   |
| C30                 | 1-162-916-11 | s CERAMIC, CHIP 12PF 5% 50V  |
| C31                 | 1-162-916-11 | s CERAMIC, CHIP 12PF 5% 50V  |
| C32                 | 1-162-970-11 | s CERAMIC, CHIP 0.01uF 10% 25V   |
| C33                 | 1-162-964-11 | s CERAMIC, CHIP 0.001uF 10% 50V  |
| C34                 | 1-162-966-11 | s CERAMIC, CHIP 0.0022uF 10% 50V   |
| C35                 | 1-164-227-11 | s CERAMIC, CHIP 0.022uF 10% 25V  |
| C36                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C38                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C39                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C40                 | 1-128-397-21 | s ELECT 100uF 20% 16V  |
| C41                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C42                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C43                 | 1-128-397-21 | s ELECT 100uF 20% 16V  |
| C44                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C45                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C47                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C48                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C49                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C52                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C53                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C54                 | 1-128-397-21 | s ELECT 100uF 20% 16V  |
| C55                 | 1-128-397-21 | s ELECT 100uF 20% 16V  |
| C56                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C57                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C58                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C59                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C60                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C61                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C62                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| C63                 | 1-164-156-11 | s CERAMIC, CHIP 0.1uF 25V  |
| #C64                | 1-162-968-11 | s CERAMIC, CHIP 0.0047uF 10% 50V   |
| #C65                | 1-135-259-11 | s TANTALUM, CHIP 10 20% 6.3V   |
| CN1                 | 1-691-419-11 | o HOUSING, 8P  |
| CN2                 | 1-566-532-11 | s CONNECTOR, FPC 16P   |

NOTE: Please see page 7-10 for the parts that are not listed in the parts list.

## (SV-147 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description             |
|---------------------|--------------|----------------------------|
| CN3                 | 1-566-195-11 | o CONNECTOR, PIN 2P, MALE  |
| CN4                 | 1-566-526-11 | s CONNECTOR, 10P           |
| CN5                 | 1-566-524-11 | s CONNECTOR, FPC (ZIF) 8P  |
| CN6                 | 1-569-529-11 | o HOUSING, 14P             |
| CN7                 | 1-506-479-11 | s CONNECTOR 14P, MALE      |
| CN8                 | 1-566-534-11 | s CONNECTOR, FPC (ZIF) 18P |
| CN10                | 1-566-526-11 | s CONNECTOR, 10P           |
| CN11                | 1-506-485-11 | s CONNECTOR 6P, MALE       |
| D1                  | 8-719-016-38 | s LED LN1351C6, GRN        |
| D2                  | 8-719-016-38 | s LED LN1351C6, GRN        |
| D3                  | 8-719-016-38 | s LED LN1351C6, GRN        |
| D4                  | 8-719-980-38 | s DIODE SB07-03C           |
| D5                  | 8-719-980-38 | s DIODE SB07-03C           |
| D6                  | 8-719-037-59 | s LED LN210RP, RED         |
| D7                  | 8-719-037-60 | s LED LN410YP, YEL         |
| D8                  | 8-719-018-39 | s LED LN310GP, GRN         |
| D9                  | 8-719-037-60 | s LED LN410YP, YEL         |
| D10                 | 8-719-400-18 | s DIODE MA152WK            |
| D11                 | 8-719-400-18 | s DIODE MA152WK            |
| D12                 | 8-719-400-18 | s DIODE MA152WK            |
| D13                 | 8-719-400-18 | s DIODE MA152WK            |
| D14                 | 8-719-980-38 | s DIODE SB07-03C           |
| D15                 | 8-719-980-38 | s DIODE SB07-03C           |
| D16                 | 8-719-400-18 | s DIODE MA152WK            |
| IC1                 | 8-759-929-26 | s IC TL431CPS              |
| IC2                 | 8-752-039-31 | s IC CXA1418N              |
| IC3                 | 8-752-038-71 | s IC CXA1127AM             |
| #IC4                | 8-759-251-48 | s IC UPC358GR-E1           |
| IC5                 | 8-759-925-90 | s IC SN74HC74NS            |
| IC6                 | 8-759-925-90 | s IC SN74HC74NS            |
| IC7                 | 8-759-927-29 | s IC SN74HCU04NS           |
| IC8                 | 8-759-926-77 | s IC SN74HC541NS           |
| IC9                 | 8-752-854-07 | s IC CXP87532-008Q         |
| IC10                | 8-759-998-49 | s IC MB3771PF              |
| IC11                | 8-759-245-52 | s IC TA7291F               |
| IC12                | 8-759-551-68 | s IC MGM80021FP            |
| IC13                | 8-759-300-71 | s IC HD14053BFP            |
| IC14                | 8-759-926-06 | s IC SN74HC126NS           |
| IC15                | 8-759-823-87 | s IC LB1638M               |
| #IC16               | 8-759-251-48 | s IC UPC358GR-E1           |
| IC17                | 8-759-150-61 | s IC UPC78L05T             |
| IC18                | 8-759-150-61 | s IC UPC78L05T             |
| L1                  | 1-410-381-11 | s INDUCTOR CHIP 10UH       |
| L2                  | 1-410-381-11 | s INDUCTOR CHIP 10UH       |
| Q1                  | 8-729-230-49 | s TRANSISTOR 2SC2712-YG    |
| Q2                  | 8-729-140-75 | s TRANSISTOR 2SD999        |
| Q3                  | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q4                  | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q5                  | 8-729-140-75 | s TRANSISTOR 2SD999        |
| Q6                  | 8-729-140-75 | s TRANSISTOR 2SD999        |
| Q7                  | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q8                  | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q9                  | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q10                 | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q11                 | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q12                 | 8-729-901-00 | s TRANSISTOR DTC124EK      |
| Q13                 | 8-729-230-49 | s TRANSISTOR 2SC2712-YG    |

NOTE: For # marked in the parts list, refer to "SECTION 8 CHANGED PARTS".

(SV-147 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| Q14                 | 8-729-017-58 | s TRANSISTOR 2SB1323           |
| Q15                 | 8-729-140-75 | s TRANSISTOR 2SD999            |
| Q16                 | 8-729-901-00 | s TRANSISTOR DTC124EK          |
| #Q17                | 8-729-901-00 | s TRANSISTOR DTC124EK          |
| #Q18                | 8-729-901-00 | s TRANSISTOR DTC124EK          |
| R1                  | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R2                  | 1-218-736-11 | s METAL 68K 0.50% 1/16W        |
| R3                  | 1-218-736-11 | s METAL 68K 0.50% 1/16W        |
| R4                  | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R5                  | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R6                  | 1-216-853-11 | s METAL, CHIP 470K 5% 1/16W    |
| R7                  | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R8                  | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R9                  | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R10                 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W    |
| R11                 | 1-218-698-11 | s METAL, CHIP 1.8K 0.50% 1/16W |
| R12                 | 1-218-845-11 | s METAL 820 0.50% 1/16W        |
| R13                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R14                 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W    |
| R15                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R16                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R17                 | 1-216-793-11 | s METAL, CHIP 4.7 5% 1/16W     |
| R18                 | 1-216-793-11 | s METAL, CHIP 4.7 5% 1/16W     |
| R19                 | 1-216-793-11 | s METAL, CHIP 4.7 5% 1/16W     |
| R20                 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W    |
| R21                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R22                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R23                 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W    |
| R24                 | 1-216-651-11 | s METAL, CHIP 1K 0.5% 1/10W    |
| R25                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R26                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R27                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R28                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R29                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R30                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R31                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R32                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R33                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R34                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R35                 | 1-216-857-11 | s METAL, CHIP 1M 5% 1/16W      |
| R36                 | 1-218-313-11 | s METAL, CHIP 560 1% 1/16W     |
| R37                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R38                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R39                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R40                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R41                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R42                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R43                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R44                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R45                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R46                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R47                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R48                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R49                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R50                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R51                 | 1-218-736-11 | s METAL 68K 0.50% 1/16W        |
| R52                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R53                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R54                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |

NOTE: Please see page 7-10 for the parts that are not listed in the parts list.

(SV-147 BOARD)

| Ref. No.<br>or Q'ty | Part No.     | SP Description                 |
|---------------------|--------------|--------------------------------|
| R55                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R56                 | 1-218-706-11 | s METAL, CHIP 3.9K 0.50% 1/16W |
| R57                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R58                 | 1-216-829-11 | s METAL, CHIP 4.7K 5% 1/16W    |
| R59                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R60                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R61                 | 1-218-736-11 | s METAL 68K 0.50% 1/16W        |
| R62                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R63                 | 1-218-700-11 | s METAL 2.2K 0.50% 1/16W       |
| R64                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R65                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R66                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R67                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R68                 | 1-218-698-11 | s METAL, CHIP 1.8K 0.50% 1/16W |
| R69                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R70                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R71                 | 1-218-716-11 | s METAL 10K 0.50% 1/16W        |
| R72                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R73                 | 1-218-744-11 | s METAL 150K 0.50% 1/16W       |
| R74                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R75                 | 1-218-867-11 | s METAL 6.8K 0.50% 1/16W       |
| R76                 | 1-218-867-11 | s METAL 6.8K 0.50% 1/16W       |
| R77                 | 1-218-724-11 | s METAL 22K 0.50% 1/16W        |
| R78                 | 1-218-724-11 | s METAL 22K 0.50% 1/16W        |
| R79                 | 1-216-635-11 | s METAL, CHIP 220 0.5% 1/10W   |
| R80                 | 1-216-809-11 | s METAL, CHIP 100 5% 1/16W     |
| R81                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R82                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R83                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R84                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R85                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R86                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R87                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| R88                 | 1-215-907-11 | s METAL 22 5% 3W               |
| R89                 | 1-216-841-11 | s METAL, CHIP 47K 5% 1/16W     |
| #R90                | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W     |
| S1                  | 1-570-598-11 | s SWITCH, DIP 4-CKT            |
| X1                  | 1-579-962-21 | s CRYSTAL 22.5792MHz           |

[DUS-736 BOARD]

Up to Serial No. J:10110, UC:20055, EK:50235

|     |              |                                  |
|-----|--------------|----------------------------------|
| C64 | 1-162-968-11 | s CERAMIC, CHIP 0.0047uF 10% 50V |
| C65 | 1-135-259-11 | s TANTALUM, CHIP 10 20% 6.3V     |
| Q17 | 8-729-901-00 | s TRANSISTOR DTC124EK            |
| Q18 | 8-729-901-00 | s TRANSISTOR DTC124EK            |
| R90 | 1-216-837-11 | s METAL, CHIP 22K 5% 1/16W       |

NOTE: For # marked in the parts list, refer to "SECTION 8 CHANGED PARTS".



#### TENREGI BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                   |
|---------------------|--------------|----------------------------------|
| 1pc                 | 1-648-982-11 | o PRINTED CIRCUIT BOARD, TENREGI |
| D1                  | 8-719-821-03 | s ELEMENT, HALL THS117           |

#### VR-154 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-078-11 | o PRINTED CIRCUIT BOARD, VR-154 |
| S1                  | 1-467-523-11 | s ENCODER, ROTARY               |

#### VR-181 BOARD

| Ref. No.<br>or Q'ty | Part No.     | SP Description                  |
|---------------------|--------------|---------------------------------|
| 1pc                 | 1-650-079-11 | o PRINTED CIRCUIT BOARD, VR-181 |
| S1                  | 1-467-523-11 | s ENCODER, ROTARY               |

#### FRAME

| Ref. No.<br>or Q'ty | Part No.       | SP Description                 |
|---------------------|----------------|--------------------------------|
| 1pc                 | △ 1-251-148-11 | s INLET, AC (3P)               |
| 1pc                 | △ 1-413-647-11 | s SWITCHING REGULATOR          |
| 1pc                 | 1-466-954-11   | s DISPLAY UNIT, EL             |
| 1pc                 | 1-466-955-11   | s ENCODER, ROTARY              |
| 1pc                 | 1-467-524-11   | o KEY BOARD UNIT               |
| 4pcs                | 1-500-082-11   | s FILTER, CLAMP (FERRITE CORE) |
| 1pc                 | 1-532-827-11   | s FUSE (MT4-3A-N1)             |
| 1pc                 | 1-543-793-11   | s FILTER, CLAMP (FERRITE CORE) |
| 1pc                 | 1-544-578-11   | s SPEAKER                      |
| 2pcs                | △ 1-560-764-21 | o CONTACT, FEMALE AWG18-24     |
| 1pc                 | △ 1-562-817-11 | o HOUSING, CONNECTOR 2P        |
| 2pcs                | △ 1-565-787-21 | o CONTACT, RECEPTACLE 1P       |
| 1pc                 | 1-570-028-11   | s SWITCH, MICRO                |
| 1pc                 | △ 1-570-455-11 | s SWITCH, AC POWER SEESAW      |
| 1pc                 | 1-698-239-11   | s MOTOR, DC FAN                |
| 1pc                 | 1-952-582-11   | o HARNESS, SUB (EL)            |

#### 7-4. ACCESSORIES SUPPLIED

| Ref. No.<br>or Q'ty | Part No.       | SP Description             |
|---------------------|----------------|----------------------------|
| 1pc                 | △ 1-534-754-00 | s CORD, POWER (For J)      |
| 1pc                 | △ 1-551-812-11 | s CORD, POWER (For UC)     |
| 1pc                 | △ 1-590-910-11 | s CORD, SET POWER (For EK) |

NOTE: Please see page 7-10 for the parts that are not listed in the parts list.

NOTE: For # marked in the parts list, refer to "SECTION 8 CHANGED PARTS".

## SECTION 8 CHANGED PARTS

NOTE: The numbers identified by marking with ) are matching with each serial numbers.

- 310) Serial No. 10066 and higher (For J)  
Serial No. 20026 and higher (For UC)  
Serial No. 50111 and higher (For EK)
- 311) Serial No. 10081 and higher (For J)  
Serial No. 20036 and higher (For UC)  
Serial No. 50156 and higher (For EK)
- 401) Serial No. 10111 and higher (For J)  
Serial No. 20056 and higher (For UC)  
Serial No. 50236 and higher (For EK)

### ADA-31 BOARD

| Ref.No.<br>or Q'ty | Parts No.      | SP Description               |
|--------------------|----------------|------------------------------|
| OLD) C101          | 1-164-085-00 s | CERAMIC 0.001uF 10% 50V      |
| 401) C101          | 1-163-275-11 s | CERAMIC, CHIP 0.001uF 5% 50V |
| OLD) C104          | 1-163-251-11 s | CERAMIC, CHIP 100pF 5% 50V   |
| 401) -             | DELETED        |                              |
| OLD) C105          | 1-164-085-00 s | CERAMIC 0.001uF 10% 50V      |
| 401) C105          | 1-163-275-11 s | CERAMIC, CHIP 0.001uF 5% 50V |
| OLD) C107          | 1-163-239-11 s | CERAMIC, CHIP 33pF 5% 50V    |
| 401) -             | DELETED        |                              |
| OLD) C201          | 1-164-085-00 s | CERAMIC 0.001uF 10% 50V      |
| 401) C201          | 1-163-275-11 s | CERAMIC, CHIP 0.001uF 5% 50V |
| OLD) C204          | 1-163-251-11 s | CERAMIC, CHIP 100pF 5% 50V   |
| 401) -             | DELETED        |                              |
| OLD) C205          | 1-164-085-00 s | CERAMIC 0.001uF 10% 50V      |
| 401) C205          | 1-163-275-11 s | CERAMIC, CHIP 0.001uF 5% 50V |
| OLD) C207          | 1-163-239-11 s | CERAMIC, CHIP 33pF 5% 50V    |
| 401) -             | DELETED        |                              |
| OLD) C312          | 1-164-085-00 s | CERAMIC 0.001uF 10% 50V      |
| 401) C312          | 1-163-275-11 s | CERAMIC, CHIP 0.001uF 5% 50V |
| OLD) C412          | 1-164-085-00 s | CERAMIC 0.001uF 10% 50V      |
| 401) C412          | 1-163-275-11 s | CERAMIC, CHIP 0.001uF 5% 50V |
| OLD) C515          | 1-126-157-11 s | ELECT 10uF 20% 16V           |
| 401) C515          | 1-124-261-00 s | ELECT 10uF 20% 50V           |
| OLD) -             | NOT USED       |                              |
| 401) IC901         | 8-759-234-77 s | IC TC4S66F                   |
| OLD) -             | NOT USED       |                              |
| 401) IC902         | 8-759-234-77 s | IC TC4S66F                   |
| OLD) -             | NOT USED       |                              |
| 401) Q901          | 8-729-901-00 s | TRANSISTOR DTC124EK          |
| OLD) -             | NOT USED       |                              |
| 401) Q902          | 8-729-901-05 s | TRANSISTOR DTA124EK          |
| OLD) R12           | 1-216-103-91 s | METAL, CHIP 180K 5% 1/10W    |
| 311) -             | DELETED        |                              |
| OLD) R13           | 1-216-071-00 s | METAL, CHIP 8.2K 5% 1/10W    |
| 311) R13           | 1-216-295-00 s | METAL, CHIP 0 5% 1/10W       |
| 401) -             | DELETED        |                              |
| OLD) R137          | 1-216-107-00 s | METAL, CHIP 270K 5% 1/10W    |
| 311) -             | DELETED        |                              |

### (ADA-31 BOARD)

| Ref.No.<br>or Q'ty | Parts No.      | SP Description            |
|--------------------|----------------|---------------------------|
| OLD) R144          | 1-216-121-00 s | METAL, CHIP 1.0M 5% 1/10W |
| 311) R144          | 1-216-113-00 s | METAL, CHIP 470K 5% 1/10W |
| OLD) -             | NOT USED       |                           |
| 401) R146          | 1-216-121-00 s | METAL, CHIP 1.0M 5% 1/10W |
| OLD) -             | NOT USED       |                           |
| 401) R153          | 1-216-097-00 s | METAL, CHIP 100K 5% 1/10W |
| OLD) R237          | 1-216-107-00 s | METAL, CHIP 270K 5% 1/10W |
| 311) -             | DELETED        |                           |
| OLD) R244          | 1-216-121-00 s | METAL, CHIP 1.0M 5% 1/10W |
| 311) R244          | 1-216-113-00 s | METAL, CHIP 470K 5% 1/10W |
| OLD) -             | NOT USED       |                           |
| 401) R246          | 1-216-121-00 s | METAL, CHIP 1.0M 5% 1/10W |
| OLD) -             | NOT USED       |                           |
| 401) R253          | 1-216-097-00 s | METAL, CHIP 100K 5% 1/10W |
| OLD) R414          | 1-216-077-00 s | METAL, CHIP 15K 5% 1/10W  |
| 401) R414          | 1-216-073-00 s | METAL, CHIP 10K 5% 1/10W  |
| OLD) R513          | 1-216-009-00 s | METAL, CHIP 22 5% 1/10W   |
| 401) R513          | 1-216-025-00 s | METAL, CHIP 100 5% 1/10W  |
| OLD) R514          | 1-216-009-00 s | METAL, CHIP 22 5% 1/10W   |
| 401) R514          | 1-216-025-00 s | METAL, CHIP 100 5% 1/10W  |
| OLD) -             | NOT USED       |                           |
| 401) R903          | 1-216-295-00 s | METAL, CHIP 0 5% 1/10W    |
| OLD) -             | NOT USED       |                           |
| 401) R904          | 1-216-295-00 s | METAL, CHIP 0 5% 1/10W    |
| OLD) -             | NOT USED       |                           |
| 401) R905          | 1-216-097-00 s | METAL, CHIP 100K 5% 1/10W |
| OLD) -             | NOT USED       |                           |
| 401) RV901         | 1-241-628-11 s | RES, ADJ CARBON 2.2K      |
| OLD) -             | NOT USED       |                           |
| 401) RV902         | 1-241-628-11 s | RES, ADJ CARBON 2.2K      |

RF-53 BOARD

| Ref.No.<br>or Q'ty | Parts No.      | SP Description               |
|--------------------|----------------|------------------------------|
| OLD) C121          | 1-164-004-11 s | CERAMIC, CHIP 0.1uF 10% 25V  |
| 401) C121          | 1-135-259-11 s | TANTALUM, CHIP 10uF 20% 6.3V |
| OLD) C221          | 1-164-004-11 s | CERAMIC, CHIP 0.1uF 10% 25V  |
| 401) C221          | 1-135-259-11 s | TANTALUM, CHIP 10uF 20% 6.3V |

SSP-8 BOARD

| Ref.No.<br>or Q'ty | Parts No.      | SP Description             |
|--------------------|----------------|----------------------------|
| OLD) C175          | 1-164-081-11 s | CERAMIC 470pF 10% 50V      |
| 401) C175          | 1-163-133-00 s | CERAMIC, CHIP 470pF 5% 50V |
| OLD) C176          | 1-164-081-11 s | CERAMIC 470pF 10% 50V      |
| 401) C176          | 1-163-133-00 s | CERAMIC, CHIP 470pF 5% 50V |
| OLD) C177          | 1-164-081-11 s | CERAMIC 470pF 10% 50V      |
| 401) C177          | 1-163-133-00 s | CERAMIC, CHIP 470pF 5% 50V |
| OLD) C178          | 1-164-081-11 s | CERAMIC 470pF 10% 50V      |
| 401) C178          | 1-163-133-00 s | CERAMIC, CHIP 470pF 5% 50V |
| OLD) C179          | 1-164-081-11 s | CERAMIC 470pF 10% 50V      |
| 401) C179          | 1-163-133-00 s | CERAMIC, CHIP 470pF 5% 50V |
| OLD) C180          | 1-164-081-11 s | CERAMIC 470pF 10% 50V      |
| 401) C180          | 1-163-133-00 s | CERAMIC, CHIP 470pF 5% 50V |
| OLD) C181          | 1-164-081-11 s | CERAMIC 470pF 10% 50V      |
| 401) C181          | 1-163-133-00 s | CERAMIC, CHIP 470pF 5% 50V |
| OLD) C182          | 1-164-081-11 s | CERAMIC 470pF 10% 50V      |
| 401) C182          | 1-163-133-00 s | CERAMIC, CHIP 470pF 5% 50V |
| OLD) C183          | 1-164-081-11 s | CERAMIC 470pF 10% 50V      |
| 401) C183          | 1-163-133-00 s | CERAMIC, CHIP 470pF 5% 50V |
| OLD) C184          | 1-164-081-11 s | CERAMIC 470pF 10% 50V      |
| 401) C184          | 1-163-133-00 s | CERAMIC, CHIP 470pF 5% 50V |
| OLD) C185          | 1-164-081-11 s | CERAMIC 470pF 10% 50V      |
| 401) C185          | 1-163-133-00 s | CERAMIC, CHIP 470pF 5% 50V |
| OLD) C729          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V    |
| 401) -             |                | DELETED                    |
| OLD) C765          | 1-164-096-11 s | CERAMIC 0.01uF 50V         |
| 401) C765          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V    |
| OLD) C767          | 1-162-806-11 s | CERAMIC 0.1uF 10% 50V      |
| 401) C767          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V    |
| OLD) C768          | 1-162-806-11 s | CERAMIC 0.1uF 10% 50V      |
| 401) C768          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V    |
| OLD) C769          | 1-162-806-11 s | CERAMIC 0.1uF 10% 50V      |
| 401) C769          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V    |
| OLD) C770          | 1-162-806-11 s | CERAMIC 0.1uF 10% 50V      |
| 401) C770          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V    |
| OLD) -             |                | NOT USED                   |
| 401) C771          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V    |
| OLD) -             |                | NOT USED                   |
| 401) C772          | 1-128-057-11 s | ELECT 330uF 20% 6.3V       |
| OLD) -             |                | NOT USED                   |
| 401) C773          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V    |

(SSP-8 BOARD)

| Ref.No.<br>or Q'ty | Parts No.      | SP Description           |
|--------------------|----------------|--------------------------|
| OLD) -             |                | NOT USED                 |
| 401) C774          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V  |
| OLD) -             |                | NOT USED                 |
| 401) C775          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V  |
| OLD) -             |                | NOT USED                 |
| 401) C776          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V  |
| OLD) -             |                | NOT USED                 |
| 401) C777          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V  |
| OLD) -             |                | NOT USED                 |
| 401) C778          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V  |
| OLD) -             |                | NOT USED                 |
| 401) C935          | 1-163-038-00 s | CERAMIC, CHIP 0.1uF 25V  |
| OLD) CNI112        | 1-251-103-11 o | SOCKET, IC 40P           |
| 310) CNI112        | 1-526-662-21 o | SOCKET, IC 40P           |
| OLD) CNI307        | 1-251-103-11 o | SOCKET, IC 40P           |
| 310) CNI307        | 1-526-662-21 o | SOCKET, IC 40P           |
| OLD) CNI509        | 1-251-103-11 o | SOCKET, IC 40P           |
| 310) CNI509        | 1-526-662-21 o | SOCKET, IC 40P           |
| OLD) D705          | 8-719-911-19 s | DIODE 1SS119             |
| 401) D705          | 8-719-941-84 s | DIODE DA204UT106         |
| OLD) D706          | 8-719-911-19 s | DIODE 1SS119             |
| 401) -             |                | DELETED                  |
| OLD) -             |                | NOT USED                 |
| 401) FB702         | 1-412-694-11 s | INDUCTOR BEAD            |
| OLD) IC710         | 8-759-926-77 s | IC SN74HC541ANS          |
| 401) -             |                | DELETED                  |
| OLD) IC733         | 8-759-038-46 s | IC SC7S00F               |
| 401) -             |                | DELETED                  |
| OLD) -             |                | NOT USED                 |
| 401) IC735         | 8-759-925-90 s | IC SN74HC74ANS           |
| OLD) -             |                | NOT USED                 |
| 401) IC736         | 8-759-927-46 s | IC SN74HC00ANS           |
| OLD) -             |                | NOT USED                 |
| 401) IC737         | 8-759-925-90 s | IC SN74HC74ANS           |
| OLD) -             |                | NOT USED                 |
| 401) IC738         | 8-759-927-46 s | IC SN74HC00ANS           |
| OLD) -             |                | NOT USED                 |
| 401) IC739         | 8-759-927-46 s | IC SN74HC00ANS           |
| OLD) -             |                | NOT USED                 |
| 401) IC740         | 8-759-925-76 s | IC SN74HC08ANS           |
| OLD) -             |                | NOT USED                 |
| 401) IC914         | 8-759-279-59 s | IC EPM7032-WECTL         |
| OLD) -             |                | NOT USED                 |
| 401) L706          | 1-412-533-21 s | INDUCTOR 47uH            |
| OLD) R713          | 1-216-009-00 s | METAL, CHIP 22 5% 1/10W  |
| 401) R713          | 1-216-025-00 s | METAL, CHIP 100 5% 1/10W |
| OLD) R718          | 1-216-009-00 s | METAL, CHIP 22 5% 1/10W  |
| 401) R718          | 1-216-025-00 s | METAL, CHIP 100 5% 1/10W |
| OLD) R725          | 1-216-009-00 s | METAL, CHIP 22 5% 1/10W  |
| 401) R725          | 1-216-025-00 s | METAL, CHIP 100 5% 1/10W |

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SV-147 BOARD  
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| Ref.No.<br>or Q'ty | Parts No.      | SP Description                 |
|--------------------|----------------|--------------------------------|
| OLD) -             |                | NOT USED                       |
| 401) C64           | 1-162-968-11 s | CERAMIC, CHIP 0.0047uF 10% 50V |
| OLD) -             |                | NOT USED                       |
| 401) C65           | 1-135-259-11 s | TANTALUM, CHIP 10 20% 6.3V     |
| OLD) IC4           | 8-759-100-94 s | IC UPC358G2                    |
| 311) IC4           | 8-759-251-48 s | IC UPC358GR-E1                 |
| OLD) IC16          | 8-759-100-94 s | IC UPC358G2                    |
| 311) IC16          | 8-759-251-48 s | IC UPC358GR-E1                 |
| OLD) -             |                | NOT USED                       |
| 401) Q17           | 8-729-901-00 s | TRANSISTOR DTC124EK            |
| OLD) -             |                | NOT USED                       |
| 401) Q18           | 8-729-901-00 s | TRANSISTOR DTC124EK            |
| OLD) -             |                | NOT USED                       |
| 401) R90           | 1-216-837-11 s | METAL, CHIP 22K 5% 1/16W       |